

OUTLINES
OF A
COURSE OF LECTURES
ON THE
MATERIA MEDICA,

DESIGNED FOR THE USE OF STUDENTS,

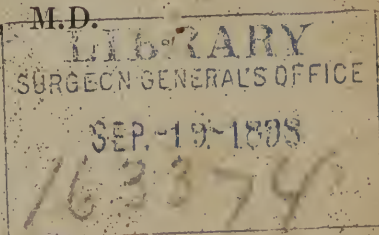
DELIVERED AT THE

Medical College of the State of South-Carolina.

BY

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FIFTH EDITION.



CHARLESTON, S. C.
JAMES AND WILLIAMS, PRINTERS,
16 STATE-STREET.
1858.

QV
F9390
1858

F. 120 No. 6357. no. 2

Entered according to Act of Congress, in the year 1851, by

HENRY R. FROST, M.D.,

In the Clerk's Office of the District Court of the District of South-Carolina.

SYLLABUS.

INTRODUCTORY LECTURE.

RESPONSIBILITIES of a Lecturer on the subject of medicine, and the reasons why these feelings should be entertained—Responsibilities of the student—No profession, except the Clerical, the duties of which are so arduous, and the results, issuing in life, or death, are more important—Student excited by the honors and rewards of the profession. The preliminary and collateral studies of the physician are of the most engaging character. His active duties attended with enjoyments of a still higher order—moral, benevolent, and religious feelings encouraged.

Qualifications and duties of medical students—Importance of education.

Of qualifications preparatory to professional education—of the study of Languages—English—Latin—Greek. These last selected for the formation of the various compound terms employed in science—illustrated by furnishing a few words with their derivatives. French and German should be studied by every one desirous of excelling in professional literature. Other branches of knowledge—as Geography, History, Natural Philosophy, Mathematics, a liberal course of reading.

Qualifications during the student's medical education—The study of anatomy, with physiology, forming the ground-work of his medical course—the cultivation of organic science, with microscopic observation—organic chemistry.

To healthy anatomy, the study of morbid anatomy should succeed. Chemistry—applied to pathology and therapeutics—to the *Materia Medica*—vegetable analysis—value of the *Materia Medica* to the student and general practitioner—Of other branches of study.

Duties of the student—To study and qualify for the profession selected—force of perseverance—striving for the mastery in all undertakings—not on accidental circumstances.

ces, but on the character as students, that success as practitioners will mainly depend. To study and correct conduct, to be added humility—Improvement of leisure moments—The results to which it has led—Sir Astley Cooper's advice—Conclusion—General aim of the Lecturer to be as practical as the limits will admit.

GENERAL VIEW OF THE MATERIA MEDICA.

Its connections with other branches of Science—Natural History—Pharmacy—Chemistry—Physiology, and the practice of Physic. The natural substances employed as medicines are extremely numerous, and derived from the three kingdoms of nature—vegetable, mineral, animal. From the first obtained in the largest number—Remarks upon each of these divisions. Vegetables, though varied in their effects, and exercising an influence of the most opposite character, yet in their ultimate elementary arrangement exhibit a very similar composition ;—oxygen, hydrogen, carbon, and sometimes nitrogen, enter into the structure of all vegetable substances. Though these elements exist in all vegetables, yet they are in different proportions. It is this diversity which gives rise to the great variety of vegetable productions, and places us in possession of remedies different in powers and in action, and adapted to every state of disease.

The active principles of plants being influenced by a variety of circumstances, particular attention should be paid to whatever relates to their growth and preservation. It is important when we wish to avail ourselves of their medicinal properties, that we should regard the period of their maturity, since to each period of their growth, there corresponds most commonly a chemical composition peculiar to that stage.

Remarks upon the general economy of plants, with directions for gathering and preserving them.

The choice of plants—the period for gathering the leaves, roots and seeds.

The means by which the medicinal properties of plants may be discovered.

1. The sensible qualities of plants, color, taste and smell considered, as determining their properties—remarks upon each. They will not admit of very extensive, or accurate application.

2. Botanical affinities. By these affinities is meant that

plants agreeing in their general structure, habits and appearance, have also a similarity in their effects upon the system. Examples of plants allied to each other by affinities, also agreeing in their operation—the graminæ, or grasses—the labiated plants—the umbelliferous—the euphorbiaceous—the coniferæ—the amentaciæ—Exceptions to these examples. These exceptions do invalidate the general principle, but are not sufficient to set it aside—since we must take into consideration the important influence of cultivation upon the properties of plants—being no less remarkable in the vegetable than the animal kingdom.

3. Chemical analysis.

4. Experiments or experience—not always conclusive—sources of error.

From the animal kingdom we derive but few medicines.

In what condition does nature present us with remedies in the vegetable kingdom?

Medicines are not simple substances, but will vary in their action according to the principles they contain—The effects which follow their application to the organized body.

Remarks upon the importance of the Study of Botany to the physician—the study enforced from several considerations.

MODUS OPERANDI OF MEDICINES.

THE subject intricate and obscure—the operations of medicines dependent upon the vital actions with which the body is endowed—Remarks upon life and its effects—division into animal and organic.

The various parts or organs to which medicines are applied.

1. *The stomach and alimentary canal the most important.*—They become so from their seat and connexions. The two properties of the stomach upon which the impression of medicines are made—its sensibility and irritability—The nature of the impression made upon these organs. 1. An increase of the vital energies of the part. 2. A change of action. The proofs of an increase of action—The impression not the same in all cases. It varies with the quality of the article. It is modified according to constitution, habit, the situation of the part, the state of disease.

That a change of action takes place, we may soon be con-

vinced, if we administer a substance which produces a strong impression—illustrated by examples from Emetics, Cathartics, Stimulants, &c. These effects of medicinal, or other impressions upon the stomach, which we term *primary* and *immediate*, are not alone to be considered of chief importance—it is their *secondary* or *therapeutical* operations with which we are chiefly interested—These enumerated :—

2. *The circulation* another channel for the action of remedies. The opinion of very ancient date, originating with the advocates of the Humoral pathology, and supported by many facts and experiments, particularly those of Magendie upon absorption—and confirmed by Lawrence and Coates of this country.

Examples of various foreign substances introduced into the circulation, and manifested in the secretions.

A solution of cyanide of potassium, tested by sulphate of iron in the fluids of the body—Various salts detected in the secretions and excretions—Volatile substances in the breath and exhalations—Madder in the bones.

Examples of substances injected into the veins, producing effects corresponding to those following their introduction into the stomach.

Conclusions from the preceding observations, and the advantages we derive through this channel in the operations of medicines and removal of disease enlarged upon.

All medicinal substances not equally susceptible of absorption. Examples of such as are—the saline preparations, camphor, the coloring matter of madder, rhubarb, saffron, asafœtida, iodine, bromine, arsenic, the active principles of opium, quinine; acids—as nitric, sulphuric, hydrochloric. Effects upon the urine of the *Amanita muscaria*, a species of fungus.

Examples of substances absorbed with difficulty—cinchona, magnesia, jalap.

Remarks upon the conditions of the surfaces favoring or retarding absorption.

1. The articles to be closely applied to the mouths of the absorbents.

2. Not equally active in every part of the intestinal or mucous surfaces.

3. Surfaces should not be in a diseased state.

4. The general condition of the system will much influence the absorbent action.

Medicinal substances do not always enter the circulation in their original state.

1. They are decomposed in the stomach by a vital action, or by a chemical.

Vegetable medicines, like alimentary substances, may be digested in the stomach, and their active elements set free. Examples—*ipeacacuanha*, *colchicum*, *jalap*.

Mineral substances—acetate of potash, bi-tartrate of potash, also undergo digestion.

2. Medicines decomposed in the stomach by chemical means, as the alkaline carbonates.

3. Medicinal substances may be absorbed entire, and be afterwards decomposed, either in the course of the circulation in the blood vessels, or in some particular secreting organ, and operate upon the nervous system by one or more of its constituents. Examples—the preparations of Mercury—nitrate of silver decomposed by the capillary vessels of the skin to the state of an insoluble-muriate of silver.

4. *The skin* next considered, and what action medicines exert through this medium. Experiments of Seguin, Currie, Klapp, Dangerfield, Rousseau, and others, on this subject. Several articles enumerated with which their experiments were performed—spirits of turpentine, perchloride of mercury, camphor, a strong infusion of garlic, a decoction of asparagus, without any test being discovered of their absorption by the skin.

Structure of the skin opposed to such a belief—squamous in its texture—while it remains unirritated and entire, no absorption takes place. When absorption takes place, the article is forced under the epidermis—parts of the body selected for this purpose—or the epidermis has been destroyed by injury or disease—or the article erodes the skin.

These views supported by Beclard, who observes that the epidermis is truly an obstacle which often prevents the absorbent power of the external tegument.

Remarks upon *Endosmose* and *Exosmose* in the operation of medicines. Some parts of the body possess this property in a considerable degree—the serous membranes—the pulmonary mucous membrane—Resisted by the epidermis in a considerable degree—only after a degree of maceration has taken place by long immersion, that it takes place at all.

5. The influence of impressions attributed to the skin operates through the *Lungs* and the *Olfactory* nerves. The action of foreign substances upon them considered—as tobacco—the fumes of ardent spirits, &c.—these articles exert no action upon the system, when the nostrils are securely plugged, or closed. Influence of the Olfactory nerves on taste.

5. *Revulsive, or counter-irritant action of Medicines.*—The influence of irritations upon the surface, whether in the form of cutaneous eruptions, or of external applications, in relieving functional derangements of internal organs, is familiar to

every one, who has observed the effects of either the therapeutical efforts of the constitution, or the means employed by the physician. Under this division are included Rubefacients, Vesicants, and Escharotics; also, cathartics, sudorifics, diuretics—Circumstances under which they are employed.

6. *Chemical action of Medicines.*—This effected by combining chemically, either with the substance of the body itself, or with the contents of the stomach and first passages. The action of caustic applications explained—nitrate of silver—vegetable caustic.

7. *Sympathetic action of Medicines—the origin of the term.*—The medicines which extend an influence to the system by means of sympathetic connections, make an impression more or less considerable upon the part to which they are applied. They change at first the vital operations of the gastric organ, and give to the nerves of this part a new action, which is extended to the whole cerebro-spinal system.

Examples—effects of stimulants—of quinine in arresting febrile diseases—of digitalis, &c. Strictly speaking, therefore, every article taken into the system, whether medicinal or otherwise, excites an extended chain of actions, and therefore those attached to the doctrine of sympathy, might argue that every thing operated by sympathetic actions. To maintain, however, that there is but one action common to medicines, *i. e.*, sympathy, is to contend against all the discoveries which have been made in physiology, in the action of the absorbents, and of the numerous facts which have been related on this subject, and not only betrays ignorance, but violates all the rules of true philosophy.

Of other parts to which medicines are applied—the bronchial passages of the lungs—the interior of the mouth—the urethra and vagina—considered hereafter.

CIRCUMSTANCES MODIFYING THE ACTION OF MEDICINES ON THE CONSTITUTION.

1. *Original conformation or constitution.*—This may often be connected with irritability of the moving fibre, or strong nervousness. Persons so constituted are greatly affected by atmospherical changes—and in the various occurrences of life, exhibit more than ordinary emotion.

Examples—Julius Cæsar—Bacon—Dr. Parry knew a lady,

who had long ceased to nurse, in whose breast a copious secretion of milk was produced, at any time, by hearing a child cry. This state of the nervous system greatly modifies the operation of medicines.

Influence of medicines resisted by persons in a high state of mental excitement, operating upon very susceptible conditions of the constitution, or extreme nervousness.

Examples—gonorrhœa very obstinate of cure, under such circumstances, in married men.

Temperament.—Sanguine and melancholic require very different modes of treatment in their diseases.

Idiosyncrasy.—The peculiarities displayed in various forms—sometimes the idiosyncrasy is in the organs of sense; at others, in the digestive organs; exhibited in the sense of touch—in smelling—in substances taken into the stomach—the white of egg causing sickness and an eruption on the skin like nettle-rash—strawberries causing syncope, succeeded by a petechial efflorescence on the skin—In the vital functions. In medicines—antimony salivating—valerian root causing nettle-rash—rhubarb followed by epilepsy—tartarised antimony in minutest doses, followed by violent effects—strychnine—belladonna, &c.

Age.—The various states of the human body, at different periods of life, have a considerable power in modifying the operations of medicines—in infancy, puberty, in advanced life.

Sex.—Not only differences in external conformation, but in the functions of the body—the genital, and uterine, influencing the operations of medicines.

Habit, or custom, modifies the action of medicines—illustrated in the use of opiates. Purgatives—the largest doses occasionally failing under disease to produce the desired effects.

Climate.—Dr. Harrison's experience. Neglect in observing the influence of climate in modifying the actions of medicines, has led to many of the discordant accounts of remedies by different writers, and the rejection of many valuable medicines.

State of the weather—season of the year—mental affections—modify the action of medicines; powerful influence of mind—confidence acts as a tonic to the whole system—the result of a medicine depends much upon the respect the patient feels for his physician—effects of distrust.*

* Thomson's *Materia Medica* furnishing much valuable assistance. Vol. I.

ACTION OF MEDICINES MODIFIED BY COMBINATION WITH EACH OTHER.

THE subject of much importance---but little written on this subject, the attention which has been paid to it being altogether of modern date. This may excite some surprise, particularly as the combination of medicines has been practised for a long period.

Some of the prescriptions of the ancient physicians contain a great many articles united in one formula. Examples---the Theriac and Mithridate. Dr. Huxham, in modern times---some of his prescriptions are extant, which contain 100 or 200 ingredients. The purport of these remarks is to show, that by combining medicines, the energy of our practice could be much increased; and, by uniting them to a proper extent, greater activity be given to the compound not otherwise possessed, and even give rise to remedies of entirely new powers.

The division adopted :

1. To consider the benefits arising from the union of articles similar in their nature or operation.

2. The benefits arising from the union of articles dissimilar in their nature.

Constitution of a medical formula described; consisting of a *base*, *auxiliary*, *corrective*, and *form*, under which it is exhibited---remarks upon each.

The advantages of a union of similar articles, illustrated by several classes of medicines---among *Cathartics*, their union resulting in a quicker action, and more feculent discharges.

Examples---sulphate of potash, with jalap or rhubarb---calomel, with jalap---senna with salts---sea-water---mineral waters. By this union not only is the action of the article quickened, but its griping tendency is obviated, and a smaller quantity is sufficient.

Laxatives.---When one laxative is employed it is apt to produce sickness and pain in the bowels, and is uncertain in the degree of its operation---when several are mixed together, they are much less apt to produce these effects, and are more certain in their operation.

Examples---manna when given alone, and when combined.

Emetics.---Ipecacuanha, in union with tart, antimony, affords a more efficient medicine than either alone.

Among *tonics* and *alteratives*, the same rule applies :---Lisbon diet drink---compound syrup of sarsaparilla---Union of vegetable with mineral alteratives. The combination of

medicines, it is designed, should be practised only in moderate limits. By multiplying these ingredients to an unreasonable extent, we would, instead of rendering the compound more agreeable to the stomach, excite disgust, and so reduce the dose of each constituent, as to fritter away the force and energy of the compound.

The same principle applies to the *preparation of food*; never employ one spice when two can be procured, when our object is to make the stomach bear a large quantity without exciting sickness.

2. Division—union of substances of a different nature. These combinations enlarge and extend the sphere of our remedial operations.

(a.) They enable us to contend with several symptoms of a disease, and produce two or more different effects at the same time, in a manner which is not oppressive to the patient.

(b.) They are useful in promoting the operation of particular medicines.

(c.) They, in some instances, give rise to compounds of entirely new powers.

The first head, illustrated by examples in diarrhœa, where the object is to check discharges by the bowels, and increase secretion by the skin, we unite an astringent and diaphoretic, as in Dover's powder, or Moseley's vitriolic solution. In spasms of the bowels, to lessen pain and excite discharges from them, the union of calomel and opium is very effectual—In dropsies, to remove the fluid and support the strength of the patient.

Under the second, by a change in the composition of a medicine by increasing its solubility. For example—aloes is increased in its solubility by combination with gamboge; senna with salts; infusions of bitter vegetables with alkaline substances. It is owing to the insoluble character of some articles that griping is produced.

Under the third head, Dover's powder affords an example of the union of two substances, producing effects different from either. The narcotic operation of the opium is obviated by the tendency of the ipecacuanha to produce relaxation of the surface, and the diaphoretic operation of this last is augmented by the stimulus of the opium, giving excitement to the action of the heart and arteries. The result, therefore, is a diaphoretic of great power and extensive utility.

Examples of chemical actions producing new products; the change in color and properties from the union of carbonate of potash, or soda, with rhubarb; the formation of an

acetate of zinc, from the union of the super acetate of lead and sulphate of zinc ; the neutral mixture ; the black wash, formed by the union of calomel and lime water.

These remarks are more particularly useful and necessary, since, in the view of Dr. Rush, but few articles were required to contend with disease ; and that armed with calomel and opium, tartar emetic and a lancet, physicians could encounter all " the ills to which flesh is heir."

ON BLOOD-LETTING.

THE remarks upon this subject properly precede the consideration of those agents, which, acting upon the several organs of the body, promote their secretions, and thereby lessen the mass of blood.

It combines many advantages. The promptness of its operation ; its effect upon the system ; not in abstracting from the quantity of the circulating mass, and the consequent abatement of activity in the sanguiferous system—but by the impression it makes upon the brain and nerves, it comes to be ranked among the most important of our remedies, the one which can with safety be appealed to in emergencies which threaten the overthrow of the animal fabric, or the derangement of its structure and functions.

History and importance of the remedy ; its most distinguished advocates ; may be practised with a view to a *palliative* or *curative* operation ; when practised with the latter intention, in the early part of Febrile or Inflammatory diseases, directed to be carried to a considerable extent ; has succeeded in arresting the disease ; Dr. Jackson's practice in the concentrated forms of fever, particularly when the brain was affected ; one large bleeding preferred to several small ones ; greater shock given to the system ; the morbid actions recently set up, either crippled in their progress, or brought to a conclusion.

The *palliative*, or auxiliary practice, to be preferred. Its advantages ; particularly useful in bringing the disease to a safe issue.

When employed before organic derangements have taken place, more decidedly remedial, and more certainly beneficial, (provided the system can sustain the shock,) than any other single remedy. It is the least hazardous to those commencing practice.

The Febrile diseases in which it is employed :

1. In *Yellow fever*, the benefits following its employment. They are a reduction of the force and frequency of the pulse, checking, in many cases, the vomiting which occurred at the beginning of the disease ; lessening the difficulty of opening the bowels ; it removes delirium ; coma ; obstinate wakefulness ; lessens muscular debility ; eases pain.

Dr. Bartlett, in his *Treatise on Fevers*, considers the comparative merits of the antiphlogistic and mercurial methods of treatment, during the years 1828, 1829 and 1830, on board some of the United States vessels, and in the hospital of Pensacola. Practice of Jackson, Pinkard, and Mosely ; practice of the author. Quantity of blood to be drawn ; dependent upon the strength of the predisposing causes ; the constitution of the patient ; climate ; temperament.

The time in which it is employed with most advantage in this and other fevers. Dr. J. Smith observes, that the physician, in the first stage of fever, armed with his lancet, is to the patient what the fireman with his engine, before the flames have had time to kindle, is to a building that has taken fire. At this early stage, the former can check inflammation with almost as much ease and certainty, as the latter can prevent the flames from breaking out.

2. In *simple continued, intermittent, and remittent forms of fever*, bleeding may often be required ; should be carried, in all cases, to the extent of producing a positive impression ; the pulse should be observed sensibly to yield to the evacuation ; the blood being allowed to flow until it becomes feeble, small, and a disposition to faint, or actual fainting, be produced.

In *Remittent fevers*, complicated with determinations to the hepatic system, blood-letting is often of the utmost importance ; relief obtained to many symptoms ; as headache, irritable stomach, restlessness, pains in various parts of the body ; the action of cathartic and other medicines promoted ; organic derangements prevented ; convalescence proportionately rapid ; the effects of blood-letting powerfully supported by the affusion of cold water ; a valuable auxiliary, and substitute for continued bleedings, without its exhausting effects.

Manner of using the cold affusion.—With these means, evacuations of a mild character are to be employed. This course pursued, such derangements of particular organs prevented, as result in congestion, particularly congestions of the brain ; and which, when established, all the stimulants which can be applied are insufficient to overcome.

New views in the treatment of febrile diseases referred

to ; Venesection and other depleting remedies objected to ; and quinine made to usurp the place of all other active remedies ; not carried along so far by the current of popular opinion as to allow such innovations. Quinine may be used much earlier in diseases, and with more freedom, than in former years, but its powers materially aided by a preparatory treatment.

Utility of Blood-Letting, and the Cold Bath, in Depressed States of the System.

1. *In Congestive Fever*, to restore re-action. Practice of Dr. Thomas Barbour, of Pulaski, Tenn.* Under the combined influence of these agents, reaction, if at all possible, soon ensues ; the surface rapidly recovers its natural temperature ; the pulse from being quick and thready, becomes fuller, softer, and more regular ; from insatiable thirst and uncontrollable restlessness, the patient often experiences so much relief, that it is not uncommon for him to fall into a quiet and refreshing sleep, from which he awakes greatly improved.

This practice pursued, where there is no contra-indication from age, intemperate habits, or feeble and broken down constitution. The objections which might be made to this practice, should not set aside the lessons of experience ; its apparent unreasonableness not stand in the way of its adoption, if clinical observation establishes its utility.

In Typhus Fever, blood-letting is employed to prevent cerebral symptoms. The cause of the fatality in most cases ; used not only to relieve symptoms, but to prevent this symptom ; objections may be made to it from the debility which exists. This is a reason for abstracting a small quantity at once, a few ounces, but not to reject it ; other debilitating remedies are employed, as leeches, blisters, purgatives, antimonials.

What is weakness, or debility, to delirium, or coma ? Debility alone, a small consideration in comparison to either. Those cases of typhus go on most smoothly, which require to be fed all through the disease, in which weakness has been from first to last a prominent symptom.

In inflammatory diseases, a remedy much to be depended upon. In these cases, the time, the quantity, and the suddenness with which it is drawn, are all-important.

The quantity to be drawn will depend upon the state of

* Vide American Journal Medical Science.

the pulse ; the degree and seat of the inflammation ; but the effect of the impression may always be increased, by bleeding from a large orifice ; or by placing the patient in an upright position. This practice may very properly be pursued with delicate constitutions laboring under high arterial excitement ; or where it is desirable to secure the consequences of free depletion, without its exhausting operation. In practising blood-letting, the effect to be obtained, or the impression made, to be the measure of what is drawn, rather than the apparent quantity.

The system readily accommodates itself to large abstractions. Instances related of large quantities of blood being lost in disease, in surgical operations, on the field of battle, in parturition, in improper situations of the placenta ; proving that when judiciously managed for the cure of diseases, blood-letting may be extensively employed.

In *Inflammatory* diseases will be found a powerful curative remedy ; and when an organ is inflamed, it may be employed unhesitatingly.

In *Pneumonia* and *Pleurisy*, may be freely employed. The general directions given should be attended to. The quantity drawn should be influenced by the degree of inflammation present, the age, habit and constitution of the patient ; carried to the extent of relieving pain, or tendency to syncope.

In *Dysentery*.—In the cases requiring this treatment, it will be found useful by lessening excessive pain and tormina, removing mucous, and bloody discharges, substituting for them feculent matter ; laxative medicines operate with best effects after bleeding ; a further proof of the good effects of blood-letting, when required in this disease, is the relief which is obtained by a natural hæmorrhage from the bowels ; other remedies also required in acute cases.

In *Inflammation of the Brain*, or *Arachnitis*, *Encephalitis*, or *Cerebritis*—the advantage of this mode of depletion, or rather its superiority over other means, is very conspicuous. Other means are useful, but blood-letting has decided advantages. Not unusual to observe every exacerbation in the progress of such case, denoted by restlessness, delirium, increased frequency of pulse, of 10, 15 or 20 pulsations, subside after the loss of a few ounces. Fainting or syncope in this inflammation not readily induced ; for the excited condition of the brain keeps up a constant determination to that organ, and prevents syncope.

In *Ophthalmia*.—The great utility of this species of depletion must be apparent. From this disease we will take the opportunity of illustrating the utility of venæsection upon

an important system of vessels, *the capillaries*---constituting the seat of inflammation ; the capillaries being inflamed and distended with blood, no remedy more important to relieve this distension, and to lessen the impetus of the advancing column. An inflamed eye, which is red as scarlet before bleeding, in a few moments is essentially improved in its appearance, and a repetition will frequently remove it.

In Acute Puerperal Peritonitis, or Puerperal Fever.—The treatment must be antiphlogistic ; one direction should be particularly enforced, that it be drawn *early* and freely ; unsafe to resort to this evacuation after the disease has been established thirty hours. Many authorities adduced as to its utility in this disease ; Drs. Alexander Gordon, La Gouais, Meigs, Lee. The state of the pulse should not deter from the use of the remedy ; often small and contracted, but becomes fuller and stronger during the time the blood has been flowing, or soon after. Pain a safer guide than the pulse.

The great mortality which has taken place in this and other varieties of uterine inflammation, certainly cannot be attributed to the abuse of blood-letting, for it is observed that few of those bled early and copiously, died ; while those terminated fatally which either were not bled at all, or very late and sparingly, and took stimulants.

Blood-letting not recommended in febrile inflammatory diseases, to the exclusion of other active remedies ; other valuable auxiliaries.

Objections to the use of the lancet considered and answered.

1. Dropsies and anasarca swellings the frequent consequences of its employment.

2. Increasing the debility which exists in febrile diseases.

3. Rendering its habitual employment necessary.

Conclude by noticing the *immediate* effects of this remedy on patients laboring under disease.

A reduction of the force and frequency of the pulse.

The sudden removal of pain.

Reducing the temperature of the surface.

Promoting the operation of cathartic medicines.

Tendency to induce sleep.

Morbid effects of blood-letting.

LOCAL BLOOD-LETTING.

COMPREHENDS Leeching and Cupping ; natural history of the *Hirudo Medicinalis*, or Leech.

It is characterized by an oblong body, very contractile, having each extremity capable of being expanded into a fleshy disc, by which it adheres to the body, with a kind of suction similar to a cupping glass ; a triangular mouth situated under the anterior extremity, armed with three very sharp, strong, teeth, and a sucker at the bottom, by the assistance of which it draws blood from the wound it inflicts.

Utility in various inflammatory affections. In these cases they are frequently of considerable service, but it is an *auxiliary*, rather than *primary* remedy.

In all acute cases, particularly of important viscera, general bleeding should be used to break the force of the disease, and after sufficient reduction, local measures are resorted to, to prevent a further expenditure of the vital powers ; and to act with peculiar advantage at this time on the part diseased.

In *Inflammatory* affections about the throat, in the abdomen, thorax, or cranium, or in the limbs and more superficial situations, the benefit derived from the application of Leeches, can often be obtained by no other means. To particularize some of these examples :

In *Cynanche Trachealis*, or *Croup*—the application of leeches will very properly precede the employment of blisters, and in Quinsy, they have been known to afford great relief.

In *Inflammation* of the *Pulmonary* organs, local blood-letting is often employed with great advantage, and applied to the thorax, may be considered as acting locally on the lungs.

They exercise beneficial effects, not only by the *depletion* which follows, but also by *revulsion*.

In *Inflammation* of the *Trachea* and in *Bronchitis*.

In the painful, irritating cough of the latter affection, applied above the sternum ; in the pit formed by the intermediate space between the sterno cleido-mastoidei muscles, they will be found very serviceable.

In *Pneumonia* occurring in children, they are a remedy of the utmost importance, and their utility should be held in recollection ; applied to the part affected as indicated by the stethoscope, and at a proper period of the disease, they will contribute very much to shorten its duration. Other modes of evacuation useful, but blood-letting, general or local, high-

ly important. Not omitted in a disease of such fatal character ; more so than croup, bronchitis, or whooping-cough.

In *Inflammation of the Stomach and Intestines*.

The flow of blood promoted by washing with warm water, or by cupping glasses, or by warm fomentations, or poultices, removing them as they become cold.

In all *Local Inflammations*.

In cases of *Extravasated Blood, Ecchymoses and Contusions*.

In *Local Plethora, or Congestions* about the head and heart, threatening or producing apoplexy, a useful preventive check.

In *Phlegmonous Inflammation of superficial parts*.

In *Erysipelatous Inflammation*.---In the latter not much employed in this country, but in France much resorted to. The practice in using them. When the disease spreads extensively, they must be applied directly over the inflamed membrane ; they should be scattered over the surface. From the External surfaces, their use has been extended to the Internal.

In *Ophthalmia* they have been applied to the conjunctiva of the eye, lining the tarsus. The reports in favor of this practice are very encouraging, but I have employed it with effects not equal to expectations.

Manner of applying them to the Conjunctiva.

Leeches have been applied to *Inflamed Tonsils*, to the Nostrils, to the Uterus, and Rectum.

Manner of using them.---As they are very sensitive to strong odors, the part to which they are applied, should be first washed with soap and water, so as to remove the matter of perspiration, and the skin should be wiped dry ; the leeches should be applied one by one with the fingers, or placed in a glass covered all over, except one edge. The leeches should generally be suffered to fall off the spot spontaneously. If forcibly separated, the teeth which penetrate the skin, and which swell when inserted, are apt to be torn off.

They may be made to drop off by sprinkling with salt or snuff.

The leech drops off when it is gorged, by falling into a state of asphyxia from want of respiration.

The number to be applied will vary with the age. The quantity of blood drawn by each leech, will depend upon the quality. To the blood drawn by the leech, must be added that discharged by the punctures. The discharge from this source is often very considerable, and occasionally very difficult to check. Means to be resorted to : use of collodion in arresting hæmorrhage from these punctures recommended.

Leech Fishery.

CUPPING.

RESORTED to, when besides the loss of blood, it is also desirable to excite much irritation on the skin, being *revulsive* and *depletive*—employed for the same general purposes as Leeches. The diseases to which this remedy is adapted will correspond with those which have been already mentioned under the head of leeching. They are applied to various parts of the body; the temples, scalp, back of the neck, along the spine, to the chest and other places.

The manner in which the operation is performed.

Dry cupping, and with the scarificator. The former a very prompt and efficacious method of producing counter irritation in acute pains; it may with much advantage be resorted to in spasmodic affections of the bowels; in Cholera; in Cramps; small tumblers may be employed for this purpose. Two or three applied to the abdomen are sufficient for this purpose; a valuable auxiliary applied to the back of the neck in Epistaxis.

Cupping glasses to Poisoned wounds—with a view to prevent the absorption of venomous matter; experiments which were performed to illustrate their utility. Strychnia, or hydrocyanic acid, introduced into wounds made in the thighs and back of full grown rabbits; cupping glass applied, and renewed as often as it fell off, no symptoms of poisoning occurring; but when removed, convulsions brought on. Other poisonous articles employed, and with similar results. Dr. Barry's explanation of the *modus operandi*; that of Drs. Pen-nock and Rodrigues.

Treatment of poisoned wounds recommended.—The application of a ligature above the affected part, and the employment of suction by the mouth. This method I would recommend in cases of poisoning, or suspected poisoning from animals, as more prompt, more effectual, and more safe. Inasmuch as it can be speedily practised, it is superior to excision or caustic. If there are no ulcers in the mouth, no apprehension need be entertained; for should a portion of the saliva impregnated with the poisonous matter be swallowed, no injury would result, since, from the experiments of Orfila, the poison of the viper may be introduced into the stomach with perfect safety—not always successful; pursued in the case of Dr. Wainright, of New York, but with fatal termination.

MATERIA MEDICA.

HAVING considered all the subjects introductory to our subject, we will now proceed to those which are particularly to engage our attention.

The Materia Medica is commonly divided into aliments and medicines. Though not always followed by systematic writers, it is certainly correct, and productive of much practical utility. Every practitioner should be acquainted with the kind of diet which will suit different disorders, and more particularly how to direct the regimen of his patients in such a manner, as not to be unmindful of their comfort, and of the very essential aid which is to be furnished to the medical treatment from this source.

Definition of the Materia Medica, more properly *Materies Medicæ*; the department of medical science which teaches the knowledge of remedies, or the substances employed in the cure of diseases.

The subject diffuses itself very extensively, comprehending the *natural* and *chemical* history of the different articles; the method of preparing them for use; the application of these articles to diseases; their doses and best modes of administering them.

Previous to the consideration of these points, it will be proper to treat of the Classification of so extensive and multifarious a list of remedies as this branch comprises; importance of a good arrangement in facilitating the acquirement of knowledge; a good system in science being like a fine building in architecture, where, from the skill of the architect, the various rough and heterogeneous substances which enter into its composition, are so ordered, each in its proper place, as to present to the eye a uniform and harmonious whole; so in the Materia Medica, the confusion which would arise from a large number of articles being irregularly treated, yields at once to the simplicity, order, and ready comprehension afforded by a judicious classification.

No branch of science affords a more manifest foundation for associations, than that which treats of the different articles employed in the cure of diseases. Distribution of medicines into classes of very ancient date; during a period so extensive as that in which medicine has been practised, many different distributions have been formed, and a variety of general terms introduced for expressing them.

Brief account of the various plans of arrangement which have been pursued.

First, in point of time and simplicity, is the alphabetical arrangement. From this, we can derive no information with regard to the *specific* virtues of various substances admitted into the catalogue of the *Materia Medica*.

Another mode was founded on the class of bodies or kingdoms, to which the different substances belonged. Thus we had three general divisions, animal, vegetable, and mineral.

Another upon an investigation of the sensible and most obvious qualities of the medicinal substances.

These divisions are too general, indiscriminating and uninformative. For example, some substances have no discriminating sensible qualities; others possess several so nearly similar, that it is difficult to refer them to one class, in preference to another; and others again resemble one another in their sensible qualities, and yet are very different in their effects upon the human frame.

Another upon the medicinal operation of the article upon the system. This arrangement must be considered the best for classification, as well as to present to our view the predominant characters of such a variety of articles as the *Materia Medica* comprises. Medicines ought to furnish the characters which serve to unite, or to separate them; and what characters can be preferable to the effects, physiological and practical, which they excite? Dr. Cullen has arranged the articles as their operation is exerted upon the solids and fluids of the body, and has distributed the various substances in twenty-three classes; Dr. Darwin comprehends them all under seven classes.

A fifth into classes, according to the systems of the body upon which their action is exerted.

The following is the arrangement which will be pursued in these Lectures:

1. To treat of those medicines which irritate the stomach and duodenum.

This division comprises Emetics.

2. Those which irritate the internal surface of the intestines.

This division comprises Cathartics.

3. Those which increase the natural operations of the intestines without exciting irritation.

Laxatives comprised under this division.

4. Those which destroy, or counteract offending substances lodged in the alimentary canal.

Under this division is comprised Anthelmintics and Antacids.

5. Medicines which promote particular secretions.
 - a* Of the skin—Diaphoretics.
 - b* Of the kidneys—Diuretics.
 - c* Of the uterus—Emmenagogues.
 - d* Of the salivary glands—Sialagogues.
 - e* Of the bronchial passages—Expectorants.
6. Medicines which strengthen the organized structures ; Tonics.
7. Medicines which in strengthening, also restrain excessive discharges ; Astringents.
8. Medicines which lessen the energy of the nervous and muscular systems ; Narcotics and Anti-spasmodics.
9. Medicines *incertæ sedis* ; those whose action is not well determined, and which cannot with propriety be arranged under any of the foregoing divisions.

In this proposed distribution, there are as many classes of medicines as are sufficiently determined by their characters, and by the phenomena which are proper to them.

Each division represents a particular medical property, which is discoverable in all the natural substances comprehended under it. This property not the same in all the different substances ; they have not the same energy, but it is sufficient to justify the alliance which is made, that each exerts the same organic phenomena, and that the substances of each class produce an action bearing a considerable resemblance to each other.

Objections which may be made to the proposed arrangement.

Every article treated of more particularly under that head in which its powers are most conspicuous ; when, from a difference in its preparation or its exhibition, other properties are discovered, it must again be considered under such other divisions as correspond with the virtue specified.

The medicines of these Classes do not act in any of these modes uniformly and invariably. From the states and conditions of the organs attacked, the same remedies exhibit often the most opposite effects ; a cathartic will often prove emetic, or the reverse ; a febrifuge increase fever, &c.

Nothing absolute ; the operations of medicines modified by the condition of the organs or system ; in prescribing an article, it is important that the condition of the part, or system, be accurately known ; that the nature of the impression made by each article, as well as the force of that impression, be also known ; the modifications that are to be pursued, as relates to age, sex, idiosyncrasy, climate, season ; that the preparation be such as to furnish all the results that may reasonably be expected after all the foregoing knowledge has

been obtained ; and lastly, in what shape, or what states of combination, the medicinal agent produces the most powerful and beneficial effects. Upon some, or all of these subjects, it will be my duty to enlarge, and as much as in my power, to afford you just, reasonable, and proper views upon the action of medicines, so that without extolling them unduly on the one hand, or depressing them unnecessarily on the other, present you such changes either in the body to be acted upon, or the agent, as will secure or defeat the intentions we may have in view.

In commencing any of the divisions, the following is an abstract of the leading objects which will be considered :

1. A definition of the class.
2. Direct effects of the class, and the changes induced in the system by these direct effects.
3. Effects of the class in the cure of diseases, and practical remarks upon its use in particular diseases.
4. Directions to be observed in the use of the class.

The history of particular articles.

1. The Natural History.

Under this head will be considered its natural Family, sensible qualities, chemical analysis.

2. The medical History.

The preparation of the article.

1. For a convenient form.
2. For preservation.
3. For external uses.

Combinations of the Article.

1. For augmenting its virtues.
 2. For correcting its active powers.
- Lastly, the adulterations.

Pursuing the arrangement proposed, I shall consider under the first division.

DIVISION 1.

Medicines which irritate the Stomach and Duodenum.

This comprises the articles termed Emetics.

Definition of an Emetic ; many substances may act as Emetics, but we understand by them, such as act by a specific impression upon the stomach.

The importance of this class of remedies ; their usefulness apparent by controlling the operations of so essential an organ.

Objections have been made to this class of remedies, and some prejudices have existed against them.

These considered and removed.

Another objection to emetics, is, that they are weakening remedies, and exhaust the patient too much ; this objection will also appear equally unfounded—for the weakness which occurs in the *early stages of disease*, does not arise from real *exhausted strength*, but from the *nervous system being depressed*, in consequence of the action of morbid substances on the stomach, and which is extended over the system. Any degree of languor, or weakness, produced by an emetic, cannot be so mischievous, as suffering the morbid cause to continue in action ; whatever therefore will evacuate it from the system, so far from weakening, will restore strength, and this fact most of us have experienced, either as relates to Emetics or Cathartics.

The immediate effects of Emetics, and the Physiological phenomena following their employment.

The operation of Emetics upon the mucous coat of the stomach is irritating ; the effects of this irritation are an increase of all the vital actions of the mucous membrane, the blood penetrates it, the capillary net work existing upon its surface, is more red, and more sensible ; these effects are extended to the duodenum, and the same organic phenomena excited ; this increase of the vital energies of the stomach and duodenum is only of short duration ; if it was of long continuance, it would cease to belong to those operations which are considered sanitary ; it would partake of the action of disease.

The impression is soon effaced, without leaving any traces of its effects, within a very short time after they are administered.

To these effects of an Emetic of a proper character, others quickly succeed.

The secretions are increased in a considerable degree.

1. The serous exhalation.
2. The secretion from the mucous follicles is augmented.
3. The secretions of the large glands opening into the duodenum are increased.

a. The Liver ; it is not probable that the quantity of bile frequently rejected, could have existed in the stomach or

duodenum previous to the taking of the Emetic ; the secretion of the fluid is often excited by the medicine taken, and is the result of irritation upon the surface of the duodenum extended by means of the Ductus Communis Coledochus to the liver ; particles of the emetic substance may also be absorbed by branches of the vena portæ and carried to the liver, adding another irritant to this organ. To these sources furnishing an increased supply of bile, must be added the compression of the gall bladder.

The secretory operation of another gland is promoted. The Pancreas partakes also of the irritating operation of emetic articles—its secretory action increased.

The effects of this irritation do not cease here ; the muscular coat of the stomach and duodenum feels the influence of this new irritation ; by its contraction, the contents of this organ are expelled, and we have all seen how violent and severe it is in many cases, being so complete as to reject the smallest quantity of fluid which has been swallowed.

Another effect still produced ; a change takes place in the regular and accustomed operations of this coat ; its action is inverted, and the contractions proceed from the pylorus to the cardia.

How is this inverted action explained.

Is the evacuation of the stomach the result of an active operation of the organ ? Magendie maintains that the stomach is passive ; and that vomiting is occasioned by the pressure of the abdominal muscles and diaphragm upon it ; this opinion at variance with the received opinions of Physiologists.

The experiments of Magendie have been repeated ; and while the importance of the action of the diaphragm and abdominal muscles has been acknowledged, the contractions of the stomach were also considered necessary, to effect the expulsion of its contents : such would be our conclusion, from the uniformity which takes place in this operation ; the diaphragm becoming contracted and fixed, the ribs drawn down, the abdominal muscles drawn inwards, so that the stomach is pressed on all sides by voluntary muscles, its own contraction is all that is required to expel its contents.

The local operation of Emetics is not alone of interest to us ; it is the actions it excites in various parts of the body ; it is the changes which are produced in the exercise of its functions, which are important to be known.

The general effects of Emetics.

1. Upon the Brain and nervous system.

2. Upon the Circulation.

The secretions are excited.

1. Expectoration is promoted ; the contraction of the diaphragm and abdominal muscles, with their alternate relaxation, variously agitates the motion of the air in the lungs and bronchiæ, and thereby promotes expectoration.

2. Diaphoresis is promoted.

3. The action of the absorbents is increased.

4. The secretion of the kidneys is more abundant.

Rules to be observed in their administration :

1. Where there is plethora of the system, or the habit disposes to plethora, general bleeding should precede the administration of the emetic ; lest from the strong determination of blood to the head, apoplexy be induced, or a rupture of the vessels of the brain.

2. When the necessity is urgent and a quick operation is desired, a large dose of the most active Emetic must be given.

3. In ordinary cases it is best to give them in divided doses.

4. If the operation of the Emetic is too violent, the best means of checking it is fomentations to the stomach, and if necessary to the feet—anodynes in large doses. During the existence of pain, it is necessary to administer them in large doses ; pain so modifies the action of opium upon the nervous system, that large doses can be taken with impunity.

If these means fail, an anodyne enema should be administered ; the warm bath may be required ; or the abstraction of a few ounces of blood ; counter agents may be required to neutralize the emetic salt which has been taken. If the Tartarised Antimony and Potash, an infusion of green tea, or other astringents ; if the Sulphate of Copper, or other salt of this metal, albumen diluted with water, or sugar and water drunk freely.

In irritable conditions of the stomach, whether brought on by Emetics, or other causes, it is important to administer medicines and drinks, in the smallest possible quantity ; it is the custom to give drinks freely in these cases, and the thirst is also urgent ; but from the condition of the stomach, it is rejected as soon as taken ; a mouthful, or a tablespoonful, will be sufficient to moisten the throat ; more will be rejected. Sometimes entire abstinence is best.

5. Do not allow the apparently inactive state of the stomach to induce you to augment the dose of an emetic to a preposterous extent. When the stomach is insensible to the operation of one emetic carried to a reasonable extent, the best practice would be, to have recourse to another, as sensibility may exist to the stimulus of one article, when it refuses to respond to another. Dr. Paris observes, that although the stomach be unable to void its contents by vomiting, it may, nevertheless, retain its sensibility, and therefore be liable to inflammation. A case is related of a practitioner attempting to excite emesis in an epileptic patient by a large dose of the Sulphate of Zinc, which produced inflammation of the stomach, and a fatal termination.

APPLICATION OF EMETICS TO DISEASES.

They are adapted to a great diversity of cases; this attributable to the extensive surface which the stomach and intestinal canal presents, to the variety of irritating matters which are daily introduced into them, from the combined sources of extraneous articles of food, and the occasional morbidity of their natural secretions. There is also a considerable affinity between the surface of the body and the intestinal canal, so that when perspiration is checked, as by the application of cold, the natural secretions into that canal are increased, which becoming acrid and irritating, add to the original exciting causes.

Their beneficial operation may be arranged under the following heads:

1. *As Evacuants*—In *Febrile diseases* they will often be found highly beneficial; these diseases generally accompanied with symptoms which mark a deranged condition of the secretions, and a departure from healthy action.

The symptoms are, impaired appetite for food; weight at the precordia; abdominal distension; with nausea, thirst, and furred tongue. Under these circumstances, the propriety of their employment must be manifest. They should, generally, be of an active character, not only to evacuate and renew secretions, but to make such an impression upon the general system through their influence upon the nervous, as to alter and subdue the existing diseased actions.

I have not occasion to employ them in every case of fever.

The cases requiring their employment: when the fever has

been preceded by a meal which oppresses the stomach; when nausea distresses the patient; when an unpleasant taste is complained of; when headache exists.

In most cases, headache will be found connected with the disordered condition of the stomach, and of its secretions. If bile is not present, there will often be acidity in excess, and patients will state to you, that it is of such a character, as to place the teeth on edge; it is then a good general rule to evacuate the stomach.

Cases of Febrile disease, where they are contra-indicated; when there is determination to the stomach and intestines—this determination is indicated when the stomach is irritable, with occasional vomiting of thin fluids; or frequent retching; when the tongue is red; when pain and soreness exist in the epigastric region upon pressure being made.

In the *Bilious Remittent* and *Intermittent Fevers* of our country they are often indicated.

In *Intermittents* their operation is sometimes remarkable, not unfrequently putting a stop to the disease.

In *Fevers of a Typhoid* character; in *Eruptive* diseases; no one remedy can be beneficial in all cases, and at all times.

Emetics were condemned by Broussais, a very popular writer and practitioner, under the impression that they produce such a degree of irritation as to produce a Gastritis; and that if the patient labored under fever, it would be converted from a mild form, to one of a more violent character; and under these apprehensions of their use, he restricts their employment to a very few occasions. The objections answered, and an appeal made to experience for a full refutation of them. The author's testimony in favor of their utility, and the beneficial effects derived from them; not confined to the early state of disease, but may with safety be given, in the middle and advanced stages; may even be useful in some of the mild forms of Gastritis itself, by changing the condition of the organ, and substituting an impression followed by critical evacuations, and of a different nature, from that constituting the disease.

2. *Emetics useful as Diaphoretics*.—They operate beneficially in Febrile diseases, not only as evacuants, but by promoting the secretions, particularly by the skin. In these diseases, this secretion is checked from the high arterial excitement, and from a morbid stricture of the vessels of the skin. The perspiration being checked, the heat of the body is increased with the general uneasiness of the system.

Emetics operate by diminishing action, and inducing general relaxation.

In *Dysentery* and *Diarrhœa*—They are useful not only for

their evacuant operation, but also from their diaphoretic ; intimate connection between the skin and alimentary canal ; in the disease of the latter, we attempt revulsion by renewing the secretions by the surface—utility of this practice confirmed by many authorities.

In *Dyspepsia*, they are useful by removing the morbid contents of the stomach, and changing the character of its secretions ; they are more useful in removing the burning pain in the epigastrium, and freeing the stomach of its acid secretions, than all the antacids which can be employed ; some caution should be observed in their use.

3. *Emetics emulge the Biliary ducts, and promote the Biliary secretion.*

They become useful in obstinate *Constipation* of the bowels, unattended with inflammation ; they promote the biliary secretion, by which the bowels are stimulated to the discharge of their contents ; while by their febrifuge and relaxing operation, they remove the Fever, and the constriction, which constitute the most dangerous, as well as distressing symptoms of the disease. Several cases related of persons subject to attacks of obstinate constipation being relieved by this course, after mercurials and other remedies had been employed without success ; not to be used indiscriminately ; constipation of the bowels attendant upon Intestinal Inflammation, and very difficult to overcome—the causes of this extreme difficulty.

Emetics act as *Expectorant* and *Revulsive remedies*.

In *Pneumonia Notha*.—When the congestive state of the lungs exists in a high degree, Emetics in repeated, but small doses, are more useful than any remedies we can employ. They equalize the circulation. To such a degree does this congestion exist, that Dr. Rush has called it an apoplexy of the lungs.

In *Typhus Pneumonia*.

In *Asthma*, given before the formation of the paroxysm they very often suspend the attack ; after the disease is formed, full and free vomiting does much to effect the solution, and bestow relief. Phenomena attendant on this disease ; emetics appear to exert a centrifugal power ; the concussion the system undergoes by the action of vomiting drives the blood into the remoter parts of the body ; by the nausea they produce, spasm is relaxed, and expectoration, by the rapid passage of the air in the lungs through the bronchiæ, is promoted.

In *Pertussis* or *hooping cough*, they are effectual remedies in all stages of the disease ; it mitigates one paroxysm, and suspends another ; the emetics preferred.

In *Cynanche Trachealis* or *Croup*, emetics are indispensable, and equally successful in the Inflammatory and spasmodic forms ; they afford much relief to the symptoms, and they may be repeated during the whole course of the disease, whenever from increased excitement, or an increase of the secretion of the larynx and bronchia, any aggravation of the symptoms is experienced ; the stomach not always susceptible to their action ; by what means it is made so.

In the *Anginose affections* ; sore throat ; of great utility ; well adapted to the commencement of these diseases ; more benefit from their use than from any other species of evacuation ; these diseases intimately connected with the disordered condition of the stomach ; other diseases having a similar connection.

In *Cynanche Maligna*.

In *Cynanche Laryngæa*—C. Suffocativa—Pseudo-membranous Laryngitis.

One of the most distressing forms of Anginose disease, which you will ever witness, not only from the sufferings of the patient, but the great mortality which attends it ; emetics are highly beneficial ; the sufferings of the patient compared to a pack thread around the trachea, and this gradually tightened, until suffocation takes place—Dr. Armstrong's testimony in favor of their utility. Such the sufferings and the mortality of these cases, that the propriety of an artificial opening into the trachea strenuously recommended by some practitioners.

Emetics in the Diseases of the Head have been thought beneficial.

The sick headaches of the studious and sedentary.

In an anomalous species of headache, occurring after blows upon the head, they afford much relief.

A case related of a severe blow upon the head in a rencontre, with the effects, and the relief afforded by emetics. The brain supports the operation of emetics under certain circumstances without injury. In the Apoplectic state of intoxication, they effect much in restoring the patient to his senses ; also in the excited state which precedes collapse.

In *Apoplexy*—used with caution.

In *Idiopathic Apoplexy* depending upon general fulness of the system, of the vessels of the brain, or rupture of its blood vessels, they are forbidden ; but when dependent upon the condition of the stomach, resorted to with advantage ; when it succeeds a debauch or a full meal, they are useful ; but to be preceded by venesection—apoplexy frequently arising from the latter causes.

In *Epilepsy*—of great utility when connected with the derangement of the stomach and bowels. This connection rendered probable by the circumstances of its recurrence—it being observed to make its attacks in epileptics, upon any irregularity in diet ; to occur among children who are much indulged ; and that its attacks are seldom renewed without either an habitual indulgence in eating, or a neglect of necessary exercise ; utility of emetics before the recurrence of the paroxysm, when this is indicated by symptoms.

In the *Convulsive diseases of Children*—Partake of the character of epilepsy—these affections always alarming, and particularly in those of tender years—the causes various—dentition—a consequence of Febrile excitement—worms—irritating substances in the stomach and intestines—evacuants highly necessary when originating in the latter causes—emetics of a mild character, followed by liberal doses of castor oil. The practice usually pursued in these cases, much to be deprecated.

The practice recommended :

In *Mania*—In acute states of the disease as indicated by great loquaciousness, flushed cheeks—wild and inflamed eyes—emetics by increasing the determination to the brain, prohibited.

In *Chronic Mania*, and in *Melancholia*—employed as a chronic remedy. The stomach generally torpid, and requiring active doses.

In *Mania a Potu*—Utility of these evacuants from the gastric origin of the disease—this inferred from the nature of the substances ejected from the stomach—the appearances on dissection, and the effects which follow their operation.

The subjects of this disease :

The treatment which has at different times been pursued—generally stimulating—but the cure tedious and protracted. The late Dr. Klapp, from observing the effects of accidental vomiting, was induced to make trial of emetics, and much success followed their use—patients speedily tranquillized under this practice.

Effects of vomiting—the removal of thick, viscid, and glairy matter, a removal of the usual tremor, the pulse becoming fuller and less frequent, and the patient falling into a sound sleep, from which he commonly awoke, restored to reason and himself—stimulants necessary to confirm the cure. The stomach in this disease loses its susceptibility to the action of medicines, insomuch that large doses of an active character are required.

In constitutions much impaired by long indulgence, they would be prostrated under this practice, and it must not be

resorted to in all cases. When, however, the strength of the pulse, and the vigor of the constitution will admit of it, its effects will be found extremely satisfactory.

In *Hæmorrhages*—Emetics have been employed.

In *Hæmoptysis*, the practice cannot be considered safe—and hæmorrhages from other organs, are more effectually checked by other remedies.

In *some local diseases*—The state of nausea, with the diminished action of the heart and arteries, and the muscular relaxation which precedes the operation of emetics, would entitle them to some consideration in *obstinate dislocations*.

The practice to be pursued in these cases.

They have also been employed in *Hernia Humoralis*, and in the suppurative stage of bubo.

They should be used with caution during the latter months of pregnancy, and when prolapsus uteri exists.

PARTICULAR EMETICS.

THE class divided into Vegetable and Mineral—Vegetable substances will be first considered, and they will be arranged according to the natural system in families. This arrangement holds out many advantages over the Linnean or Artificial—since it informs the medical inquirer not only of the botanical affinities of the plants, but also supplies him with a knowledge of their properties and qualities. This acquaintance with the properties of even one plant of any order, enables him to form some idea of the remedial value of all the other plants in the same order, and if needful, to substitute upon fixed principles, any one of them, for that which is most usually employed.

The first article of which I shall treat, is from

The *Family Rubiaceæ*—*Calycocca Ipecacuanha*—Natural History.—For a long time the natural history of this plant was involved in much doubt and obscurity. The characters were undetermined 150 years after its properties were known. They were not satisfactorily ascertained, until Prof. Brotero read a Monograph on this subject, before the Linnean Society, in 1801, accompanied with an engraving of the plant—Several distinguished botanists having fallen into much error on this subject—then ascertained to be the root of the above plant.

Botanical description.

Root is perennial—length, 2 to 4 inches ; breadth, 2 to 3 lines.

Color brown without, white within, marked by numerous prominent unequal rings.

Taste acrid and bitter.

Smell feeble.

Stem shrubby and creeping, giving out roots at the joints.

Leaves, 4 to 8—situated near the summit of the stem, opposite—length, 3 to 4 inches ; breadth, 1 to 2—color, deep green.

Flowers, aggregate, in a solitary head—peduncles terminal and rather drooping.

Habitat—moist and shady places—in the woods of Peru, Pernambuco, Brazil.

Several varieties of the roots to be observed in the shops—the ash, or grey, and the brown.

These varieties are furnished from the same plant—the differences depending upon the soil in which it grows—season of the year in which it is collected.

The root is composed of a cortical and medullary portion; the former being most active.

Medical History.—Although the properties of this article were well known to the inhabitants of South America, it was not introduced into Europe until about the middle of the 16th century, when Helvetius, under the patronage of Louis XIV., brought it into notice, and was rewarded handsomely for the benefits conferred by its employment.

Chemical History.—From analysis, it contains—

Gum.

Starch.

Extractive matter.

Oily matter, highly acrimonious, of a penetrating odor, and pungent taste, which does not occasion vomiting.

Emetine or the emetic principle—when first prepared it is in the form of scales, of a reddish, brown color.

Sensible properties—Odor moderate—taste slightly bitter, acrid, not nauseous.

Solvents of Emetine.

Water and Acetic Acid.

Analysis of Emetine.

Carbon, Oxygen, Hydrogen and Nitrogen—Obtained in the largest quantity from the cortical portion of the root.

Preparation of Emetine.

The powdered Ipecac is treated with ether, in order to dissolve the fatty, odorous matter of the Ipecac—and when the solvent has ceased to act, the powdered substance is itself exhausted by means of alcohol. The alcoholic tincture is then evaporated in a sand bath, and the extract dissolved in cold water, when it abandons some wax and a little remaining fatty matter. It remains now only to macerate it with some carbonate of magnesia, which deprives it of the gallic acid, and then to re-dissolve in alcohol, and evaporate to dryness.

Operation of Emetine—More active than Ipecac, and possesses fewer disagreeable qualities—proposed as a substitute on account of its more pleasant taste, its small bulk, and ready solubility. In the human subject, 4 grs. in two doses, given at an interval of 15 minutes, produces full vomiting, followed by a marked disposition to sleep—not much employed, as its operation on the stomach is apt to be more violent and continued than Ipecac itself. The application of Emetine the same as Ipecac, given in divided doses.

Solvents of Ipecac.—They are numerous—water, vinegar, wine, alcohol—dissolve its active matter—active matter of a volatile nature, and by boiling it is driven off.

With wine is formed the vinous tincture of the shops, of much value in the diseases of children.

The strength of the powder is much impaired by exposure to light and air.

Application of Ipecacuanha to Diseases.

Most important of the vegetable emetics—being mild, prompt, and efficacious in its operation—not so active as the tartarised antimony, nor so speedy as the sulphate of zinc.

Adapted to a great variety of cases, and produces effects not obtained by other emetics. Its operation in general confined to the stomach, without having its action extended to the duodenum—cleanses the stomach of impurities without debilitating the patient. To the diseases of children it is well adapted. The activity of this article is proportioned to the dose, though in a less degree than other emetics—being bulky and partially insoluble, much of the powder is rejected with the contents of the stomach—admits of accumulation without having its action increased.

Powers increased by combination with tartarised antimony

and with calomel—when very active emetics are required, we must have recourse to the mineral.

What changes does Ipecac undergo in the stomach by which its emetic operation is promoted? It is decomposed in the stomach, its alimentary matters digested, and its medicinal principles set free.

Not only as an emetic is it used with advantage, but employed in a variety of diseases.

As a *sudorific*, has been employed in the diseases of the alimentary canal, and was originally introduced in the treatment of Dysentery—has not lost reputation by time. In 1686, introduced into practice in France, by Helvetius, under the patronage of Louis XIV., who proved its efficacy in the person of the Dauphin, and some of the gentlemen of the court.

In this disease after the contents of the stomach and bowels have been evacuated, it almost always produces good effects in small doses, either alone, or in combination with opium. It has been said to be particularly adapted to those cases where there is a great discharge of blood—but it is useful in every form, especially if there is much pain and tenesmus.

Of its *modus operandi*—it acts favorably by its diaphoretic operation, by which the fluids are determined to the surface—effects of Ipecac. in combination with opium.

In *Diarrhœa* equally efficacious, employed in the same manner, with proper attention to regimen.

In *Dyspepsia*, highly recommended—in what manner given? In such doses as will not excite any painful sensations of nausea, but to produce a slight action upon the stomach, by which its viscid contents are separated and discharged. Thus given, acts as an alterative and gentle evacuant—improving the gastric and other secretions of the body.

Doses of the powder, $\frac{1}{4}$ to $\frac{1}{2}$ gr. ; or

Tincture, viii. to x. m. two or three times a day, in a little water.

In *Hæmorrhages*, this article has been employed.

In *Hæmoptysis* in nauseating doses, taking care that vomiting be not excited, otherwise bad consequences would be likely to ensue.

In *Uterine Hæmorrhage*, also exhibits good effects—its *modus operandi*—exciting nausea—diminishing the action of the heart and arteries, lessening the impetus of the blood—to this may we add, equalizing the circulation, and exciting a discharge from the cutaneous vessels—given in small doses.

In *Catarrhal and Pneumonic disorders*—Useful by the action it exerts upon the mucous membrane of the bronchia and

fauces—its action in these cases diversified, and seemingly of an opposite nature—promoting expectoration in cases where the mucous membrane is inflamed and dry, and likewise serving to restrain the secretion when it is inordinate and excessive.

In the same diseases occurring in children.—No diseases so much benefitted by frequent vomiting, and no article so efficacious and so innocent—their use not limited to a single emetic, or to the beginning of the disease. They must be repeated frequently two or three times a day until relief is afforded—small doses very efficacious for this purpose. When a decided impression is made upon the disease, as evinced by the greater freedom in breathing, the improved countenance, the developed pulse, and the increased discharges from the surface, the doses are lessened, or the intervals increased.

In *Asthma*, given to the extent of vomiting, it affords relief—relief is afforded by the mechanical operation of vomiting, expelling the mucous collected in the bronchia and trachea—thereby promoting expectoration—removing the congestion of the lungs—enlarging the capacity of the thorax.

Ipecac. given in doses of v. grs. every morning in the intervals of the paroxysm, to effect a permanent cure. The author has pursued this practice in smaller doses night and morning, with the effect of moderating the paroxysms, and enabling the patient to resume laborious duties.

Combinations of Ipecac. with opium and a portion of the sulphate of potash, forms the compound, termed Dover's powder.

United with purgative medicines in small doses, gives to them greater activity.

Combined with calomel in many cases with great advantage.

Incompatible substances—All vegetable astringents—as infusions of galls, green tea, vegetable acids, as the acetic.

Action of gallic acid upon Emetine—contracts with it an intimate union, and takes from it its emetic property.

Forms of Exhibition.—Powder, tincture, infusion—the powder the most energetic—x. to xxx. grs. as an emetic ; i. to ii. grs. as diaphoretic ; $\frac{1}{4}$ to $\frac{1}{2}$ gr. as alterative and expectorant.

Tinctures—x. m. to 3 i. as a dose.

Infusion—℞. Powdered Ipecac. 3 ss.

Boiling water, $\frac{3}{4}$ iv.—dose 3 ii. to 3 ss.

Repeated as often as required, until the emetic operation takes place—much used in this form for children, and is commonly termed hippo tea.

Useful as a counter-irritant.

Applied in the form of liniment, it produces an eruption of

minute vesicles, on an inflamed base, in from 36 to 48 hours, which fade away in 3 or 4 days—prepared as follows :

R. Ipecacuanha in fine powder, - $\frac{3}{4}$ ss.
 Lard, - - - - - $\frac{3}{4}$ ii.
 Olive oil, - - - - - $\frac{3}{4}$ iss. m.

A fourth to be rubbed well into the part it is desired to irritate, 3 or 4 times a day.

GENERAL REMARKS UPON THE DOSES OF MEDICINES.

THAT large and small doses of medicines are merely relative terms, and should never be understood as denoting absolute quantities—for what would prove a large dose in one person, might prove trifling in another.

The general rule of conduct ought to be derived from the sensible effect of our practice.

Every dose of medicine, however large, is too small, if it stop short of the usual sensible operation on the constitution.

This is to be the rule in the use of medicines—the system must be placed fully under their influence, and when this has been done without effect, the remedies must be changed for others. Were this general rule more attended to, we should not so often complain of the inertness of our means, or the obstinacy of diseases. Disease and debility are kept up by what is called cautious practice—practice which is regulated rather by the quantity of the prescribed medicines, than by the effects produced.

Adulterations of Medicines.

Practised to a considerable extent, and it will be my duty to expose them on all occasions—few articles more frequently than the present—of the various substances which have been sold for Ipecac., I shall merely mention a few.

The roots of the *Gillenia Trifoliata*, or Indian physic, the *Euphorbia Ipecacuanha*, or Ipecacuanha sponge—and the *Phytolacca Decandria*, or Pokeberry root, have all been sold for this article. The roots of *Sarsaparilla* have been powdered, and combined with Tartarised Antimony in imitation of Ipecac.

From the frequency of adulterations, it is not advisable to purchase a large quantity of any medicinal substance in powder—and as frauds are committed in a manner to elude detection, would advise, when practicable, to procure as many of your medicines in the root as is possible. When this is not practicable, to seek out a responsible apothecary, and to pay the best prices for your medicines.

Of adulterations of other articles, I shall give details when they come under consideration.

Physicians cannot be too sedulous on this subject—for without it, their honest endeavors will be thwarted by the substitution of some adulterated compound, in the place of the pure article which alone can amend and heal.

Will on all occasions point out the frauds committed with medicines, and by presenting the best specimens, so familiarize you with their sensible properties, as to enable you to discover these impositions.

INDIGENOUS EMETICS, SUBSTITUTES FOR IPECACUANHA.

FAMILY *Rosaceæ*—*Spiræa Trifoliata*, vel *Gillenia T.*—Indian physic—grows plentifully in every section of the United States—the root, the part used, though the stem and leaves may be employed. Description of the plant and root.

Root composed of a cortex or bark, and a ligneous portion—the former is most active, though the ligneous portion is not without activity.

Root administered in the form of powder, when it will prove a certain and manageable emetic, at the same time safe in its operation—in mild cases requiring the employment of Ipecacuanha, it may with advantage be substituted for it—employed in the same diseases.

The dose of the *Gillenia* is xxx. to xl. grs., which gives to Ipecac. a decided superiority, the bulk being a great inconvenience—this objection obviated by combining with it one or two grs. of Tartarised Antimony—used in the adulteration of Ipecacuanha.

Family *Euphorbiaceæ*—*Euphorbia Ipecacuanha*—Ipecac. Spurge.

Found in most parts of our country—the root the part used, and was supposed to furnish the officinal Ipecacuanha.

The general character of the *Euphorbia*—all remarkable for their activity, and abounding with a milky juice.

Description of the *Euphorbia Ipecac.*

The root an active emetic, the most active of the vegetable emetics enumerated, differing from them in having its action extended to the bowels, and operating as a cathartic with considerable energy. The testimony of Drs. Barton and Bigelow in its favor. It differs from *Ipecac.* in not admitting of a frequent repetition of the doses, nor of accumulation, as violent effects might ensue. Dose \mathfrak{z} i. to \mathfrak{z} ss.

Euphorbia Corollata.—Description of the plant and root.

The root employed, and is in its operation and effects allied to the preceding, often exerting a cathartic action. Dose \mathfrak{z} i. to \mathfrak{z} ss.

In smaller doses, as ii. to iii. grs., it acts as a diaphoretic, combined with opium, or the antimonials.

In concluding these articles, I would recommend them to physicians practising in the country, little doubting that they would be found valuable, and good substitutes for *Ipecacuanha*.

There are a variety of other plants that may be used as emetics. Their enumeration will be sufficient, and their further acquaintance can be extended hereafter. They are as follows—*Sanguinaria Canadensis*, or blood root; *Aralia Spinosa*, or Prickly Ash; *Eupatorium Perfoliatum*, or Thoroughwort; *Stylingia Sylvatica*, Queen's delight; *Erythronium*, or snake leaf; *Phytolacca Decandra*, Poke Root; *Lobelia Inflata*, Indian Tobacco.

Upon this last, as much has been said of its virtues, a few remarks may be made.

Family *Campanulaceae*—*Lobelia Inflata*—Description of the plant.

It is a biennial, and found growing in most parts of the United States. Its properties are various—being Emetic, Diaphoretic, Expectorant, and in some degree Narcotic.

Sensible properties—to the taste it is acrid and pungent, followed by a sensation of roughness in the throat. This impression being stimulating, excites a copious secretion of salivary and mucous fluids, with hawking and expectoration

—effect upon the stomach—nausea produced, and in large doses, vomiting.

Character as an emetic—no peculiarity of operation, except being pungent and irritating—violent effects sometimes follow its use—becomes, therefore, exceptionable, and other articles preferred.

Very useful in *Asthmatic* affections from its expectorant and emetic operation—much pleased with its effects after a variety of other remedies had been unavailingly employed—employed in combination with other expectorants, as in the following formula :

R. Tinct. Lobelia,	} Equal parts.
Compound Syrup of Squills,	
Simple Syrup of Squills—	

3 ii. to 3 iii. given every ten minutes during the paroxysm with a little water, until relief is afforded—and in the intervals of the paroxysms, two or three times a day.

In other diseases of the thorax—as *Catarrh*, *Pertussis*, *Cynanche Trachealis*, and other pectoral diseases.

Forms of exhibition—powder—dose from ʒi. to 3 i. as an emetic.

Tincture—dose 3 i. to ʒ ss. as an emetic, repeated every 10 or 15 minutes until it operates—for its expectorant operation every hour or two.

The infusion is rarely employed—with sugar or treacle, a syrup may be formed, which may be advantageously employed in the catarrhal affections of children, and in threatened croup. This preparation will be found more active than squills, and more readily taken.

Family *Solanec*—*Nicotiana Tabacum*, or Tobacco—naturalized.

Description of the plant.

Natural History—was not known in Europe until after the discovery of America, and was first imported about the year 1560, as some say, by Sir F. Drake.

Chemical analysis—

Besides several principles, it contains a peculiar proximate one, upon which the properties of the plant depend. This is the volatile oil of tobacco, or nicotin.

Properties—taste acrid, smell peculiar to tobacco—colorless—in it resides the active principle of tobacco—it is of a volatile nature, and obtained by distillation from the leaves—poisonous—experiments of Mr. Brodie.

Medicinal properties—very diversified—being narcotic,

errhine, sialagogue, purgative, as well as emetic. The latter very decided, and has been known to produce vomiting, after other articles had failed. Useful to evacuate the stomach after poisons had been taken, and has been employed externally for this purpose—and in Cynanche Trachealis after other emetics had been unavailing.

Employed in the form of Enema in obstinate constipation of the bowels, and in strangulated hernia—employed also in the same manner in the treatment of Tetanus.

Dr. O'Bierne's practice—a strong infusion injected by means of a flexible tube into the colon. This practice adopted in 20 cases, eleven of which recovered. The smoke of tobacco employed in the same manner.

United with cerate in fine powder, has been employed for its relaxating operation in *Spasmodic diseases*—as Cynanche Trachealis, applied in the form of plaster to the sternum.

Poisonous effects more likely to occur in the form of enema, than as an emetic—Gallic acid, a counter agent, unites with the nicotina, and renders it inert. To obtain this acid, prepare an infusion of galls, green tea, or other astringent.

Family *Liliaceae*—*Scilla Maritima*, or Squills—Naturalized.

Description of the plant—root bulbous, and increases much in size—composed of laminae or scales, the external being brown, internal white.

Sensible properties—no odor—taste bitter and acrid—by drying loses much of its acrimony, but still a very active medicine.

Analysis of Squills—

Scillatin the essentially active principle—properties—acrid and bitter—white, transparent, of a resinous fracture, deliquescent—soluble.

Medical uses.—The root of squill has been long known in medicine under the mystic name of Eye of Typhon—its properties numerous and diversified, being emetic and purgative—expectorant, Diuretic.

Employed in children for its emetic and expectorant operation, and for their diseases it is much and advantageously resorted to. Given to relieve in them troublesome chronic cough—to promote expectoration in whooping cough—in croup.

Usefully combined in adults with other articles in the treatment of chronic coughs, colds, &c., as in the following formula :

R. Gum Opium, gr.	$\frac{1}{4}$
Powdered Ipecac., gr.	$\frac{1}{2}$
Powdered Squills, gr.	ii.

Syrup as much as is sufficient---make a pill.

To be repeated every 3 or 4 hours, or oftener, if necessary.

Squills yields its active properties to several menstrua---the preparations are, therefore, numerous. They are---

Tincture of Squills,	Syrup of Squills,
Vinegar of Squills,	Compound Syrup of Squills,
Oxymel of Squills,	Infusion of Squills.

Dose of the powder, 8 to 10 grs. as an emetic.

Tinctures---3 i. to 3 ss.

In smaller doses of powder, its diuretic properties are obtained---referred to under the head of Diuretics.

Family *Cruciferae*, *Semina Sinapi*---Mustard seed.

The ground mustard given in the form of a weak infusion in the proportion of 3 ii. of the flour, or fresh ground seed, in a half pint of water, acts promptly as an emetic.

It was much employed as an emetic in the early treatment of Asiatic cholera, and often with advantage. It has the advantage of leaving the stomach and system in a less depressed condition, than it is after the use of other emetics.

MINERAL EMETICS.

The most valuable are among the *Preparations of Antimony*.

Natural History of Antimony.---It exists in nature as a Sulphuret of Antimony, and is of a bluish color---a shining surface, and a striated texture---obtained from mines in Hungary, Germany, &c.---Tradition respecting the early use of this article---Medical History---introduced into the practice of medicine with great difficulty.

Uses of this article revived by Paracelsus, and it was employed by him as a powerful and efficacious remedy---alternately received and rejected---finally established in regular practice, by the labors of Hoffman, Cullen and Fordyce.

Antimony, in its natural state, is not active, unless it meets with an acid in the stomach. To become active, it is submitted to a variety of processes by the chemist. These preparations, though greatly multiplied, are characterised by an uniformity of operation. I will only glance at the most important of these preparations.

The means used to give activity to the Sulphuret of Antimony, are---

(a.) By trituration and the action of heat and air.

Antimony

None of these preparations retained in practice.

By the action of the alkalies.

1. Kermes Mineral, or Sulphuretted Hydroguret of Antimony, or sub-Hydro-sulphate of Antimony of the French—preparation.

2. Golden Sulphur of Antimony, or Sulphuretted sub-Hydro-sulphate of Antimony—preparation.

These preparations coincide nearly in their action on the system---the only difference, the latter containing more sulphur, is less active.

Medical properties and uses---their action is upon the coats of the stomach, producing nausea, and promoting the secretions of the skin, lungs and trachea.

Their action extended to the bowels, producing Catharsis.

Useful in all *Inflammatory* affections of the lungs---in pneumonia---catarrhs, acute and chronic.

They can be recommended in these cases, and are useful by diminishing excitement, determining to the surface, allaying thereby the irritation which excites and provokes coughing.

These preparations are also useful in Febrile affections, and may very well be substituted for the Pulvis Antimonialis, being not only more uniform in their operation, but decidedly more energetic.

Dose as an emetic.....vi. to x. grs.

As a Diaphoretic.....ii. to iii. grs.,
or used in the form of Pectoral mixture.

R. Kermes Mineral..... \bar{z} ss. to \mathfrak{D} ii.

Mucilage Gum Arab.,..... \bar{z} vii., mix.

Dose--- \bar{z} ss. every second or third hour.

The nausea excited diminishes action and excites perspiration---while the pulmonary exhalation being increased, expectoration is promoted.

Treat all pulmonary affections, even mild ones, as important, and you will less seldom err from too much than too little caution. Recollect that most diseases commence with irritation of function, when they are curable; and pass often rapidly into derangement of structure, when they are incurable.

3. By the action of Nitrate of Potash upon Antimony---none of these preparations are retained---in their place we have the Pulvis Antimonialis.

Preparation---it is prepared by exposing the sulphuret of antimony, and hartshorn shavings, to a white heat for a certain time---the animal matter and the sulphur are driven off, leaving an oxyde antimony with phosphate of lime, which, combined together, form the Pulvis Antimonialis of the shops or the proto-oxyde of antimony with phosphate of lime.

These are the principal preparations with the Sulphuret of Antimony.

With the oxydes of antimony united with acids, so as to form salts, there have been many preparations in use—but few are employed at the present time. The most important is the Emetic Tartar—a compound of protoxyd of antimony, tartaric acid and potash.

Preparation—it is obtained by boiling bi-tartrate of potash with protoxyd of antimony, in a glass vessel, for a quarter of an hour, and setting the liquor by to cool. In this process the excess of tartaric acid, in the bi-tartrate, is saturated by the protoxyd of antimony, and by evaporation, and crystallization, a triple salt, Tartrate of antimony and potash, is obtained.

Sensible properties.

Color white.

Taste styptic and metallic.

Soluble in water—requisite dose small.

Character as an Emetic—

Prompt, certain, and energetic.

Excites the stomach into forcible and long continued efforts to discharge its contents—this action extended to the duodenum—the operation of antimony is extended to the alimentary canal, and hence it proves considerably purgative. This effect taking place, either when the dose has been greater than necessary, merely to produce vomiting, or when the stomach has escaped the action of this powerful medicine—antimony appears to promote almost all the excretions, and to quicken and stimulate the action of the absorbent vessels.

From this extended action upon the system, it is often preferred to other emetics—and by this extended operation, does much to break up the morbid associations which are formed in disease.

Employed in the commencement of the continued fevers of our climate, and does much to effect a crisis at the onset.

In Intermittent, Remittent, and Bilious remittents of our climate, it is often properly resorted to in the early stages.

The object of the practitioner when called in the early stages of fever, is to arrest the febrile paroxysm in its commencement. This is done by the use of such means as produce a considerable commotion or shock in the system—and among these means emetics have held a high rank. They possess this advantage, that they may be employed at any period of the paroxysm.

If during the *chill*, free vomiting is excited, the *cold fit* is often speedily terminated, and a general glow, accompanied with a degree of perspiration, is produced.

If delayed until the *hot fit* has commenced, its operation is frequently followed by free perspiration, and relief to many of the concomitant symptoms.

Should it fail in bringing about a solution of the fever, the antimonial may be continued during its progress, in minute doses.

It has been a question, whether they should be carried to the degree of producing nausea.

By some physicians it is contended, that it should be carried to this extent.

While by others this practice has been condemned, and it has been said to produce the most decided advantages, when it produces the least sensible effects upon the stomach.

The sensation of nausea cannot be long supported, and if the antimonials produce good effects without being carried to this extent, it will be removing one of the strongest objections to their use. Their favorable operation in Febrile and Inflammatory diseases seems to depend upon their power to *moderate the action of the heart and arteries*, and upon the exercise of this power, their good effects seem to depend. To such an extent is it exercised, that the term *sedative* and *febrifuge* has been applied to them.

Upon this principle has this medicine been employed in other diseases, particularly the Phlegmasiæ.

In *Pneumonia*, after proper depletion, given in small doses, it will be found efficacious in relieving pain, increasing the freedom of respiration, exciting perspiration, and subduing the remaining inflammatory symptoms, more effectually than venæsection, or the usual depleting remedies.

In *Catarrhs*—chronic coughs, employed at a proper period, no article exercises a more salutary influence. By it an impression is made upon the disease, infinitely to be preferred to the mucilaginous drinks, cough mixtures, anodynes, &c., which are so often resorted to, and which are frequently so unavailing. These means allay present suffering, while the morbid action still progresses. The tartarised antimony strikes at the root of the evil.

In *Phthisis Pulmonalis*, administered in the same manner, advantage is often derived—and I have known the cough allayed, sleep induced, and the distresses of the patient quieted, when anodynes disagreed or failed.

In *Rheumatism*, either chronic or acute.

In *Cynanche Tonsillaris*—*Ophthalmia*—in *Chronic Hepatitis*—and a variety of other inflammatory diseases.

The usual strength of the solution is half a grain of the Tart. antimony to the ounce of water, or 2 grs. to six ounces of water—the dose ζ ii. to ζ ss. every 2 or 3 hours, or at longer intervals if necessary.

Such is the practice usually pursued in the employment of this article. A new course has within late years been recommended in its administration. This practice has been termed the *counter stimulant*, or the *Italian system*, of which Rasori is the founder. In this practice, the administration of medicines in very large doses has been advocated and practised. The effects of the free employment of the tartarised antimony, are as follows:

Under the free administration of this article, the stomach and intestinal canal are affected as by its ordinary use, viz: vomiting is excited several times, and afterwards evacuations from the bowels. In two hours, if 3 or 4 grs. more are given, the discharges from the bowels are not repeated, or very sparingly so.

At the expiration of the same period, the same dose is repeated until ʒi. to ʒii. are taken in the 24 hours. After the first operation, the discharges are not repeated, but the influence of the medicine is exerted upon the pulse—the skin—pain and inflammatory action are abated—The stomach is so little disturbed, that the digestive process is not interrupted—the desire for food and the sense of hunger are not removed—A tolerance for the medicine is established—The medicine is thus continued from day to day.

On the 4th or 5th day, the stomach becomes intolerant of the medicine—it is rejected—nausea succeeds—vomiting—loss of appetite—and the remedy can no longer be persisted in. Such changes are, in the meantime, induced in the system, that the disease for which it is given, has sensibly declined, or is entirely removed.

This practice does not seem so very objectionable as might be supposed. Where the excitement is great, larger doses are required to produce impressions, and the practice of Dr. Cartwright, in the *Pneumonia biliosa*, of Natchez, may be cited—In ordinary cases, smaller doses are sufficient.

Other medicines administered in the same manner.

The diseases in which tart. antimony is so freely employed are Pleuritis, Pneumonia, Rheumatism—the intestinal canal being in a sound state. If inflamed or irritable, the effect would probably be very different—it might bring on an unmanagable irritation of the stomach, or a diarrhœa difficult to control, and be productive of speedy prostration.

Tartarised antimony has been resorted to in small doses, in *chronic affections of the skin*, and in *superficial ulcerations*, so as to affect the bowels, though to produce any decisive effects, it must be long and perseveringly employed.

In *Herpes*, *Lepra*, also found useful—May be given alone,

or combined with some other article, which has a determination to the surface, as guaiacum, sarsaparilla, &c.

Applied to the *surface of the body* in the form of ointment, an action is exerted somewhat specific—a vesiculo-pustular eruption is produced, not unlike the variolous pustules, which, upon breaking, discharges a good deal of matter, and a small ulcer succeeds, which is slow in healing—Thus a powerful stimulant action is excited, which has been taken advantage of in curing formidable and deep seated affections. The diseases in which it was most successfully used, were Mania, Hypochondriasis, Pulmonary Affections, Rheumatism, Hooping Cough.

The ointment to be applied in the neighborhood of the disease—In recent cases, the first or second application has removed the disease—In chronic cases, the frictions should be continued longer—When the eruption makes its appearance, the ointment must be discontinued until the soreness is removed, when it may again be applied, with the effect of renewing the crop of pustules, and so on until a cure is effected.

The connection between Cutaneous eruptions and Internal diseases, has not escaped the observation of many physicians, and I may add, even the notice of unprofessional persons—Epilepsy, mania, delirium in fevers, phthisis pulmonalis, &c., have all been observed to be removed and excited by the recurrence or recession of cutaneous eruptions. The consent between the skin and lungs, is particularly manifested in the effects of repulsed itch, small pox, or measles, which seem to fall immediately upon the breast.

Manner of preparing the Ointment---

R. Tartarised antimony, ℥i.
Lard, ℥i.---To be well mixed.

A small portion to be applied by friction to the neighborhood of the part affected—The friction to be continued once or twice a day, for 2, 3, or 4 days, according to the sensibility of the patient's skin, when a crop of pustules takes place, with great relief to the symptoms.

The reason why greater relief is afforded by Tart. Ant. than by Cantharides, is, that it not only vesicates, but that it produces diseased action of the skin itself, by deeply deranging its structure, and the ulceration extending beneath its surface.

Of the Forms in which the Emet. Tar. is exhibited---

In solution, dissolved in warm or cold water.

Dose---ii. to iv. grs. in divided doses.

Antimonial Wine---

Prepared by dissolving Tart. Emetic, ℥ii.
Warm Water, ℥ii.
White Wine, ℥viii.

An ounce contains grs. iv., and is a dose.

The dose for a child 3 or 4 months old, is x. to xv. m.---for an infant at the birth, i. to ii. drops.

In our employment of the antimonials in the diseases of children, we cannot be too cautious.

In preparing antimonial wine, we should use the salt in the state of crystals, as in this state it is purest.

Tartarised antimony may be administered in the form of Enema.

From the relaxation induced by this medicine upon the muscular fibres, it has been recommended in *obstinate* obstruction of the bowels, in bilious colic, and other spasmodic diseases. It is prepared as follows:

R. Antimony Tartarised, grs.	viii. or x.
Water,	1 pint.

If it does not operate, it may be repeated in 30 minutes. Its use has been suggested in Tetanus.

Mistakes of a very alarming nature are sometimes made with this article---It has a resemblance to the bi-tartrate of potash, and hence becomes very obnoxious to carelessness. The treatment, when severe vomiting occurs, has been already referred to.

Should the article be retained, it will operate as a poison---and being absorbed in the system, it will be found that the lungs are disordered in the highest degree. They will be of an orange or violet color---to have lost their crackling feel---to be distended with blood---of a light texture, and in gangrenous condition. The mucous membrane of the stomach and alimentary canal, will be found distended with blood, and evidently inflamed in a *high degree*.

Sulphate of Copper---Obtained by evaporating waters which hold it in solution---such waters found in copper mines, where the sulphuret of copper, by exposure to air and moisture, is converted into a sulphate. Produced artificially by calcining the native sulphuret, and exposing it in a humid state to the air.

Copper, in its metallic state, exerts but little action upon the system---a remarkable case in illustration. When poisoning occurs from the use of copper vessels, it proceeds from the want of cleanliness, by which salts are formed, viz. : the carbonate and acetate of copper.

Characters of the Sulphate as an Emetic.

It is prompt and active---useful where narcotics have been taken. In these cases, where the irritability of the stomach has been greatly impaired, and the patient nearly in a state

of insensibility, it has produced instantaneous vomiting, given to the extent of xv. or xx. grs. dissolved in water.

Not much employed in general practice.

In *Cynanche Trachealis*, or croup—from the insensibility of the stomach to impressions, in some of the stages of this disease, it is a remedy well adapted to these cases, and may be resorted to after milder means have failed of producing emesis.

Recommended by a German practitioner as a remedy in this disease—employing venæsection, and administering in small doses every 2 hours. Where stridulous breathing exists in a high degree, an emetic of this substance is first administered, and then the same article in small doses during the disease, in conjunction with Tinct. of *Digitalis*—much success, he says, attended this practice—not losing a patient during a period of ten years, notwithstanding this disease was often at its height when called.

Will not dwell upon this article, as it does not exert any very considerable curative intentions.

Sometimes its administration in the form of pill as an emetic is convenient.

Dose as an emetic is grs. vi.

In solution, it is useful in the formation of *Gargles* for the throat, when ulcerated.

Poisoning from the Salts of Copper.

The symptoms excited are the same as those produced by arsenic or corrosive sublimate—they are violent colic pains, vomiting and purging, the eructation of a matter containing verdigris—sometimes salivation, a small pulse and blueness about the eyes, jaundice, a copper taste in the mouth.

Morbid appearances—

Signs of high inflammation, ulceration, and the contents of the stomach in the sac of the peritoneum—antidotes—albumen and sugar. Their operation upon the salts of copper is, to reduce them to the state of an oxyde, and forming an insoluble compound with this oxyde.

Sulphate of Zinc is formed from the Sulphuret of Zinc—a native production, and found in mines in Hungary, England, &c. It is obtained from it by exposure to air and moisture. By this operation the metal becomes oxidated, and the sulphur acidified, and by mutual action, the Sulphate of Zinc is formed, or it may be prepared by the direct union of its ingredients.

In its metallic state it exerts but little action upon the system.

Appearance of this salt—in white masses, grained like sugar, and spotted with yellow.

Taste—strong, styptic, metallic.

Sulphate of Zinc of commerce is not a pure article—contains Sulphate of Iron, and sometimes Sulphate of Copper—how purified.

As an emetic, it is not much employed—chiefly had recourse to when the vegetable poisons have been taken—given in doses of ℥i. to $\frac{3}{4}$ ss.

A great objection to this article is its extremely harsh and unpleasant taste.

It was much extolled by Dr. Moseley for its emetic operation, who speaks of it in terms more of an enthusiast, than an experienced practical physician. In these opinions very few coincide—so that, notwithstanding his authority, it is not often resorted to.

It formed the basis of a preparation called Moseley's Vitrolic Solution, which, combining astringent and diaphoretic properties, was highly commended in all the diseases of the alimentary canal, viz. : Chronic Dysentery, Diarrhœa, Colica Pictonum—also, by its emetic and Diaphoretic operation in diseases of the thorax—as Catarrhal Coughs, Hooping Cough, Phthisis Pulmonalis, in all of which it was recommended by him in the highest terms.

It is seldom or never employed, though there is no reason why it should not be useful, from the reputed action of the medicine. Like many other medicines, it has lived its brief existence, and lies buried—to be revived at some future day.

In *Angina Pectoris* it has been recommended—especially when depending upon irritation of the cardiac nerves, and when it occurs in connection with a disordered condition of the digestive organs. In this disease it is employed in small doses for its tonic operation, in union with opium. The disease in these cases partakes more of a spasmodic affection, and under these circumstances, relief is often afforded by its use.

In *Pertussis* and in *Asthma*, it has also been recommended, and from the relief afforded by emetics in these cases, it may be resorted to, but with little more benefit than any other article would furnish.

A brief consideration of the pathology of *Asthma*, would render the benefits afforded by emetics more striking.

What are the immediate causes of an attack of *Asthma*?

1. Spasmodic affection of the muscular fibres of the bronchiæ.

2. A morbid thickening of the mucous membrane lining

the bronchiæ, such as occurs in what is called cold in the head.

What the consequences of this state of the solids?

1. An obstruction to the free ingress and egress of air in respiration.

2. An obstruction existing, expectoration cannot be performed, or only with difficulty—the mucous retained, adds much to the embarrassment of the breathing.

3. The freedom of action in the lungs being interrupted, the blood circulates with difficulty, it accumulates in the lungs, and adds to the distress of the patient.

4. The functions of the lungs being imperfectly performed, hence the lividness of the lips, face, and of the ends of the fingers—the coldness of the surface.

The immediate cause of all this disturbance, is that state of the solids giving rise to spasms.

How do emetics operate in relieving the patient?

By the nausea excited spasm is relaxed—the air in the lungs being variously agitated during the action of vomiting, expectoration is produced, and the fluids of the body by the diversion given to them, are directed from the internal to the external parts of the body—thus the congestion of the lungs is relieved, and their functions better performed.

Chloride of Sodium—Common salt.

In the quantity of $\frac{3}{4}$ ss. to $\frac{3}{4}$ i. dissolved in water, often operates as an emetic—as an emetic in Cholera, preferred by practitioners to other emetics. The activity of the solution of this salt is increased by the addition of a tea-spoonful of the flour of mustard.

The practice of Dr. Stokes, of New Jersey, detailed—who, in sixteen well marked cases of the disease, succeeded in restoring all by this practice, except two treated with camphor, opium, brandy, external stimulants, frictions, &c.

DIVISION 2.

Medicines which irritate the Internal surface of the Alimentary Canal.

CATHARTICS.

THE effects which follow the administration of a Cathartic. The effects described will vary according to the nature and

activity of the Cathartic employed—sometimes much distress is excited, and at others little is felt.

In explanation of these effects, it will be perceived that they have their origin in the action of the Cathartic upon the surface of the intestinal canal, and that most of the phenomena are derived from the impression of these substances upon this surface—This impression not strictly local, but extended to all parts of the system.

Cathartics, therefore, exercise a local and general action—Remarks upon each—Before proceeding to either, will take a *general view* of the structure of the Alimentary Canal, as it is from the consideration of its various functions, that we are made particularly sensible of the benefits conferred by these medicines.

Cursory view of the structure of the Alimentary Canal.

The effects, therefore, or the physiological phenomena which follow the administration of a cathartic medicine, are, an increase of all the vital energies of the Alimentary Canal.

1. The capillary vessels which form a net-work, become more apparent, and distended with blood.

2. The serous exhalation is increased.

3. The mucous follicles become more active, and furnish, in a short time, a very abundant discharge.

4. The irritation is extended by the ducts which open into the duodenum to their respective glands, the liver and pancreas, and they are excited to pour out their secretions more freely.

5. The muscular fibres of the intestines are also stimulated, and the peristaltic motion increased, by which the contents of the bowels are quickly propelled and discharged.

Their utility as Evacuants, and in equalizing the circulation, made apparent—more especially so, when the character of diseases is duly considered—This consisting often in unequal excitement, or too great an accumulation of fluids in one part of the system, at the expense of another—The duty of the physician to correct this undue determination—Hence their value in diseases of the head, chest, and other parts of the system.

The Class divided into Laxatives and Purgatives—Remarks upon each.

Besides the differences which arise from different degrees of activity, they will present others, according to the part of the Alimentary Canal upon which their action is directed—This dependent upon the peculiarity of the stimulus, or upon the readiness with which it undergoes solution in the bowels.

Illustrated by examples of medicines, the action of which is exerted upon different parts of the Intestinal Canal.

Calomel has its action exerted upon the upper portion of the Intestinal Canal, and hence, by irritating this portion, has its action extended to the liver, giving rise to bilious vomiting and evacuations—Gamboge operates upon the same part, hence it often acts as an emetic.

Jalap and other resinous Cathartics, act upon the small intestines.

Aloes, Hellebore and Sulphur, principally upon the colon and rectum.

Cathartics differing in their degrees of activity, and also in acting upon different portions of the alimentary canal, it follows that the evacuations will also be different.

In some, bilious matter will predominate.

In others, serous discharges will be more abundant.

In others, an increased discharge from the mucous glands, and hence mucous discharges.

The terms applied to these evacuations are Cholagogues, Hydragogues, Phlegmagogues.

These terms have, for a very long time, been employed in medicine, and originated with the advocates of the Humoral Pathology.

They were not understood in the sense I have endeavored to explain—but that the medicines entered the system, and searched out fluids which were depraved—and which being brought into the intestines, were expelled from the system. The terms are applicable, though not in the sense formerly employed by the ancient Humoralists.

These remarks comprise what is necessary to be said, as to the local operation of Cathartics, and the physiological phenomena which ensue.

Let us consider the effect of their operation upon the system generally.

They are the result of this local irritation—The *pulse*, under their influence, is considerably affected—During and after the operation of a Cathartic, it is smaller and more frequent than in health—Under the influence of pain, commonly denominated cramp, it becomes unequal and intermittent.

The *secretions* are materially deranged—Some are increased, others are diminished.

The animal functions are much disturbed—muscular motion is impaired—the sensations appear vague and imperfect.

The intellectual functions are slow and difficult—The inclination to sleep is irresistible.

These symptoms, with others, as the thirst—the cramps, the feebleness of the function of perspiration, the disposition to sleep, are attributable to the excitement and irritation of the gastro-intestinal surface—These effects will be propor-

tioned to the character of the article employed. When of a drastic and powerful nature, the healthy functions will be slow in being restored, or an enteritis may be produced, which will give rise to other phenomena. When the article is of a mild nature, the system soon returns to the healthy exercise of its functions—the secretions are renewed, the pulse improves in its character—the desire for nourishment is restored.

Cathartics then, it is obvious, are valuable, not only as depleting remedies, but by exciting new changes in the system at large.

Are there any precautions to be observed in their employment?

We acknowledge their utility in diseases attended with excitement.

Ought we to employ them in diseases attended with debility? We know that they increase the secretions by the bowels and hurry off the chyle, and therefore should be used with caution, but they should not be rejected altogether—Because, by their use, the bowels are urged to expel their contents, by which their functions are in a degree restored; the appetite and digestion, too, are improved thereby, and the patient, so far from being weakened, is placed in a condition to be nourished and strengthened.

Again—in diseases of debility, and of long continuance, it is said that little food is taken, and therefore regular alvine discharges are not to be expected. In all diseases some nourishment is taken, which will contribute to the formation of feculent matter—but in Fevers, another supply is furnished from the abundant secretion of different organs, and the excrementitious matter poured into the intestines—Hence the necessity, under all circumstances, of attending to the condition of the bowels, since independently of solid matters being taken into the stomach, fæces are formed, which, from the heat of the body, become acrid and irritating, and add to the existing disease.

General objects accomplished by this Class of Medicines.

1. Their great value as evacuants.
2. They deplete the viscera by the secretions excited from the liver, pancreas, mucous glands, and exhalents.
3. They act powerfully in producing revulsion—The irritation excited gives increased activity to the vital energies of the part upon which the impression is made, according to the old principle *ubi irritatio, ibi fluxus*—Hence an important influence is exerted upon the head, chest, abdomen, &c.

4. The influence exerted upon the whole nervous system, through their impression upon the nerves of the intestines. To this, are we to attribute the actions excited in remote parts, the alterations which have taken place in the secretions, the renewal of action—the change, in short, which the whole system undergoes.

Particles of these medicines being absorbed, even when not operating upon the bowels, must exert an influence upon the organic structures.

5. From the combined action of all these operations, this class is entitled to be considered as *ulterative* medicines of great value, and fully illustrates the great aid they afford in diseases of almost every description.

Rules for the administration of Cathartics.

1. Cathartic medicines should be exhibited late at night, or early in the morning, where circumstances are not very urgent. It would seem that during sleep the bowels are not so irritable, and consequently not so easily acted upon—while by suspending the influence of the imagination, it renders them less liable to be rejected.

2. In cases of Fever, where it is necessary to consult the quiet and ease of the patient, it is important that their exhibition should be so timed, that their effects may be expected during the day.

3. Cathartic medicines should be exhibited upon an empty stomach, as we prevent their being rejected, and secure a more easy and effectual operation.

4. To promote the action of this class of remedies, as well as to obviate griping, warm diluents are to be freely taken after the first discharges—as chicken water, gruel, tea, &c.

APPLICATION OF CATHARTICS TO DISEASES.

HARDLY a case of deranged health, in which they may not be employed with some advantage.

The reasons why they are so generally useful—The intestinal canal is subject to so many irregularities of combination and action—its sympathies are so numerous and extensive, its functions so various and complicated, that the necessity frequently recurs of attending to its state and condition. It is, I may say, the sewer of the system, into which all the useless, foreign, and putrescible materials are collected—into which the fluids of the body, after having served their offices,

and the excretions of the several glands, are emptied—Becomes, therefore, much engaged in the production of disease, or instrumental in keeping up its activity.

In *Fevers* of every variety they are indicated.

They operate as evacuants, and remove the remote causes of these diseases.

In these cases, the bowels are generally torpid—in consequence of which a state of fullness, restlessness, and anxiety are produced, which aggravate the symptoms—Cathartics relieve this state of the system—They are useful in every stage of fever.

In the *Incipient*, they frequently check its progress.

During the course of the Fever they relieve symptoms, often increasing the strength of the patient.

In *Intermittents* they are much used.

In *Remittents* they are equally useful, and more frequently necessary—They are employed daily to evacuate the bilious matter, and bring down the force of the disease.

In our highly *Bilious grades of Fever*, and in *Yellow Fever*, they are invaluable.

Not only in these Fevers is the utility of Cathartics established, but even in *Typhus*, or the weaker forms of Fever. Their importance will be obvious, by noticing the symptoms which precede their approach. They are, loss of appetite, thirst, sickness, white or loaded tongue, disagreeable taste of the mouth, and most commonly constipation of the bowels—To these, succeed langour, headache, debility, and inaptitude of the usual mental and bodily exertions—morbid affections of the surface of the body, of the sanguiferous system, and of the different secretions soon succeed—to which, in the advanced stage, are added delirium, subsultus tendinum, and singultus.

The treatment most beneficial, is that directed to the condition of the bowels, and as their black and offensive contents are removed, the low delirium, tremor, and subsultus tendinum are abated—the tongue becomes moister and cleaner—the creeping pulse acquires a firmer beat.

In treating of this class of remedies, we have only endeavored to enforce the utility of these agents to remove some of the symptoms of Fever—This is only a part of the plan of treatment, and there is no remedy that can alone be depended upon—There is no one mode universally applicable.

In advocating the utility of Cathartics in Febrile diseases, it is proper to state to you, and even to admonish you, that in many instances, they are abused, or injudiciously employed. The remarks that I can make, must of necessity be very limited—practical views will be fully unfolded to you

from another quarter—to me, alone, belongs the Therapeutical applications of Medicines, and the cautions to be observed.

1. Cathartic Medicines, then, are abused, or injudiciously employed, when active, or drastic articles, are continued, after the stercoraceous and acrid secretions of the bowels are discharged—Under these circumstances, with the contents of the bowels, the mucous secretion, which lines and protects the tender surface of the internal membrane, has also been removed; and the continuance of active articles, can have no other effect than to wound and irritate this surface, to excite griping and distressing pains, followed by a frequent desire to evacuate the bowels—with small, thin, serous passages, attended with a painful and distressing tenesmus. The stercoraceous and offensive secretions from the bowels being removed, without subduing the disease—it will be proper to discontinue these medicines, and excite some other secretion into action. When further evacuations are required, it will be advisable to excite them *by milder preparations*, as they will most commonly be found better adapted to the condition of the vital powers, and fully capable of carrying off the secretions, which have been poured into the intestinal canal. I could depict to you the bad effects of a contrary practice, and have seen patients suffering under all the symptoms I have mentioned, the passages consisting of little else than thin, serous discharges, with flakes of mucus, floating in the fluid. The continuance of these medicines, under these circumstances, not only irritates the mucus surface to a considerable extent, but I will not go too far in stating, that instead of subduing, will be found to increase the fever. You would hardly credit me, were I to relate the extent to which I have known cathartic medicines pursued in febrile affections of an acute character. I have known from twenty to thirty evacuations excited from the bowels in twenty-four hours, not only from adults, but children. This practice is entirely wrong, it is absolutely destructive. You might almost question how such a number could be produced. The fact is undeniable, and it is adduced to show the pernicious extent to which these medicines are carried, and against which I wish to warn you. These successive discharges are procured not by two or three doses of active medicines, which are proper enough in the commencement of diseases, but by a continuance of the same medicine every two or three hours, for twenty-four, thirty-six, or forty-eight hours, and sometimes the whole course of the fever. However excited, whether by Calomel alone, or its combinations; whether Jalap and its combinations, or whether simply ole-

aginous, the practice is to be deprecated in the highest degree. I should be glad, if it were possible, to give you definite rules on this subject. I can only state to you what has usually been my course.

It is, when called to a patient laboring under acute disease, to remove, as much as possible, all apparent sources of irritation. If necessary, venæsection is practised; if not, the condition of the alimentary canal, as affording many sources of irritation, and having a more extensive influence upon the system, than any other channel, is attended to. The stercoraceous and offensive contents of the bowels being removed, which is commonly done with half a dozen evacuations, with the continuance of the disease, attempt the renewal of some other secretion—the skin, or urinary organs, and combat symptoms as they arise. When the condition of the bowels requires attention, which will be in twenty-four, or thirty-six, or forty-eight hours, to excite discharges by the same medicines, if it can be borne, and if not, by a milder article, always keeping the same object in view, a renewal of secretion, or a change of secretion, and combating symptoms as they arise. The resources of the M. M. are quite sufficient in by far the greater number of cases, if we only apply them properly, judiciously, cautiously. You will hear various and contradictory opinions as to the means by which this is to be accomplished—listen to them all, and judge for yourselves. Having found a mixture of error, and truth, to exist in systems and doctrines, I take advantage of the fact, judge for myself, and pursue an eclectic course.

2. Drastic or irritating Cathartics are injudiciously, nay, improperly employed, in diseases attended with an inflammatory condition of the mucous membrane of the alimentary canal. When speaking of the physiological operation of these articles upon this surface, the remarks then made will render it unnecessary to enter into details—It is evident that they will exasperate all the symptoms—While on the contrary, from the milder articles, the most beneficial consequences must result.

It seems to me, that in a subject of such importance, it might be advisable to particularize some examples in Febrile diseases, in which the precautions I have mentioned should be observed, as well as the symptoms which lead to a knowledge of this inflammatory state.

Without entering into the disputed question, whether Febrile diseases originate in an inflamed condition of the mucous membrane of the alimentary canal or not, I shall only observe to you, that Febrile diseases are often attended with

a considerable determination to the abdominal viscera, and among the organs affected, the stomach and intestinal canal frequently participate largely in these determinations.

The symptoms which characterize this condition of these organs, are nausea, irritable stomach, vomiting of fluids taken, pain upon pressure, costiveness. When to these are added redness of the tongue, either pervading the whole surface, or confined to the edges or tip, or when to this state, it is coated with a thick fur—when thirst exists, and the pulse ranges from ninety to a hundred pulsations in the minute, we may be assured that abdominal inflammation exists, and under these circumstances, active medicines of an emetic or cathartic character, will be improper. Depletion by the lancet, or leeches, should be preferred, until these symptoms are abated, fomentations to the abdomen, warm cloths, and the mildest medicines employed—calomel, for instance, followed by castor oil—Evacuation from the bowels being effected by this course, the utmost relief will be afforded, and the patient will have reason to rejoice in the prudence, judgment, and discrimination of his physician. A contrary practice will but subject him to much and severe uneasiness and distress.

Utility of *Cathartics in Inflammatory diseases*.—The great utility of Cathartics is not only exhibited in removing offensive matters from the bowels, in depleting the chylopoietic viscera, and exciting a new and more healthy action; but by the irritation they excite upon the serous vessels, and the mucous follicles, a copious secretion takes place from the extensive surface of the alimentary canal, and they become important remedies as Evacuants to the system generally. Hence, their great value in the treatment of Inflammatory diseases, and in the diversity of cases, in which arterial excitement is to be moderated and reduced.

In affections of the *Lungs*—as Pleurisy, Peripneumony, the employment of Cathartics has been condemned by some practitioners, apparently upon theoretical grounds—yet it will be found that free evacuations from the bowels, conduce, like blood-letting, to diminish the general and local inflammatory action, and by a revulsive operation to determine from these organs.

In *Inflammation of the Peritoneum and Intestines*,

These are forms of disease of great danger, and no one agent can be effectual. The disease can only be relieved by such means as will allay inflammation, and the whole artillery of the antiphlogistic treatment must be brought to our aid—venæsection, leeches, fomentations, diet, cold drinks, ice, &c.

Among these remedies, evacuants from the bowels are not to be overlooked—They should be of a proper character, such as will evacuate without exciting irritation. They are particularly useful in Peritonitis, and they excite secretion from the whole internal surface of the Intestines—and by exciting secretion from the internal surface of the Intestines, they relieve the external. The use of these articles in this species of inflammation will not be objected to by any one.

But in *Enteritis* their claims are not so readily admitted.

It has been said, they will increase inflammation, and from the description given to you of their physiological operation upon the mucous membrane, they will certainly do so, if improperly used.

One important effect of these remedies should be kept in view—that when properly employed they renew secretions, which is a very important method of removing inflammation, acting as by resolution.

The Intestinal surface consists of about 1400 square inches, from the whole of which secretion and exhalation are going on—It is obvious, therefore, that purging affords a very powerful means of diminishing the quantity of fluids in the body, and of depleting locally from the part.

The *Constipation* attendant on *Intestinal Inflammation* is very difficult to be overcome, being generally attended with much irritability of the stomach, so that medicines which would act, are rejected—Cathartics have, therefore, been regarded as useless, and the reduction of inflammation has been attempted by bleeding, and afterwards by Cathartics. This practice cannot be relied upon altogether—we are not to be satisfied until the bowels have been evacuated—Some perseverance is required, the medicine being often rejected as soon as taken, yet it is right still to persist, for although much may be thrown up, some will be retained. The quantity retained, accumulates in proportion as it is repeated, and at last, with the aid of enemata, stools are procured, at first small in quantity, but afterwards more copious. With this object being accomplished, the vomiting ceases, the tension of the abdomen is relieved, and the soreness is diminished. This effect gained, it is seldom necessary to resort to bleeding afterwards—the bowels, under the continued use of mild cathartics, recover their disposition to healthy action.

In *Dysentery*, they are useful by removing offensive and irritating matters which give rise to the disease—The evacuants are often required to be of an active character—Mild articles insinuate themselves between the fæces and the surface of the intestines, leaving their indurated contents, and the morbid secretion, which often cause and keep up the disease.

In *Diarrhœa*, Cathartics are also highly useful. This disease is frequently brought on by crude and undigested matter passing into the intestines, which by stimulating the excretories and the surface as they pass, excite a copious secretion of fluids, by which the constitution endeavors to rid itself of the irritation.

The treatment of this disease, when preceded by Cathartics of a moderate power, renders the subsequent management, therefore, much more easy and certain.

In *Colic*, which is produced by such a variety of causes, that no single agent will be sufficient to contend against it—Sometimes speedily removed by an emetic, and at other times, the irritability of the stomach has been such, that the mildest cathartics could not be retained—The treatment to be pursued.

There are various other cases of intestinal derangements, in which the good effects of this class of medicines are exhibited. They will be considered hereafter.

In *Diseases of the Chylopoietic viscera*.

Not only is this class of Medicines of importance in the affections of the Alimentary canal, but in those of the Chylopoietic viscera generally. Their use affords us the means of depleting from these organs, and by a continuance of the Cathartic, according to circumstances, we are able first to alter, and then subdue the derangements which exist. The cases to which I allude are those numerous examples of deranged secretions, hepatic and intestinal, which though not reducible to classes and species, are frequently seen in practice. They are exhibited in the discharges of the patient, in a furred tongue, impaired appetite, feverishness, irritability of temper, and deranged sensations generally. In these cases Cathartics are not to be used with the freedom which more acute cases require—they are not to be employed for their evacuant, but their alterative action, and by pursuing this course with steadiness, for weeks, and even months, the happiest effects I have known to follow. It is in cases of this nature that the Blue Pill exhibits a very salutary operation. By its use, the action of the bowels has been kept up for weeks, and though there was commonly two or three evacuations daily, yet the patient, without being debilitated, has been gradually relieved of the symptoms I have enumerated, and at the expiration of this period, improved in health and appearance. It is probably from a similar action being kept up upon the bowels, that the mineral springs containing active purging ingredients, as the Saratoga waters, afford such relief to patients laboring under visceral affections, and this independent of the benefits which are attributable, in all

invalids, to change of air, of scene, of diet, and the gaieties which these situations furnish.

Cathartics, in these cases, excite an action which is different from the existing one, and to this circumstance we are to attribute many of their curative effects. They induce a new action in the secreting vessels, which though it does not destroy, yet it greatly weakens the existing disease, and they may properly be considered alteratives.

Thus Rhubarb operates in curing Diarrhœa and thus Cathartics operate generally in the affections I am considering.

In diseases of the *Cerebral system*, Cathartics are of the greatest service. Their good effects in these cases depend upon their operating in three several ways.

1. Evacuating the blood-vessels.
2. Exciting irritation in parts distant from the affected.
3. Inducing a new action.

In *Headache*—of this very protean disease, what shall I say? It has its origin in a variety of causes—sometimes Idiopathic, sometimes Symptomatic—arising often from an affection of the nervous and arterial systems, and from the Alimentary Canal. It is situated in different parts of the head, and of various duration—of local or constitutional origin.

From Constitutional diseases—as in Periostitis of the cranium, following a mercurial course, or connected with the constitutional symptoms of Syphilis.

From Rheumatism.

From Spinal irritation.

From Plethora, or Deficiency of blood.

The stomach, in most cases where the head is affected, will be found in fault. It is either disordered from the substances improperly introduced into it, or from its own secretions—When from the former, evacuants will be required; and when from the latter, by medicines calculated to correct them. The use of antacids, with a preventive treatment, will succeed in most cases in relieving the complaint of headache when depending on the stomach.

The Constitutional forms of the disease, by remedies of a general character.

In *Mania*—all are aware of the importance of this class of remedies in this disease—Symptoms calling for their use, are—the suffused complexion and fœtid breath, pointing out the disordered state of the stomach and bowels—the tongue is tremulous, and covered with a white slime—the appetite is impaired or depraved—the bowels are constipated, and sometimes in a considerable degree—Nothing more remark-

able than the fetor which taints the atmosphere of the patient.

The abdomen will often be found tumid, especially in the region of the epigastrium.

In *Maniacal* affections, the ancients rested their chief reliance on Cathartics, and black Hellebore was the medicine employed for fully evacuating the intestinal canal—But though Hellebore is abandoned after 2000 years use of it, the general utility of purging is still undoubted.

In *Epilepsy*—When the causes of this disease are considered, this class of remedies will be found equally useful. Thus it is produced by worms, by the sordes of dysentery, by poisons, by repelled eruptions, and very often by constipation of the bowels. Evacuants continued from day to day, unless forbid by circumstances.

In the treatment of Apoplexy, they are valuable auxiliaries to blood-letting. This will be made apparent by considering the causes of this disease—The causes specified. The purging to be effectual must be copious, and produced by the most active remedies.

When deglutition is impeded, Croton Oil, in the dose of a drop or two, placed upon the tongue, is sufficient to evacuate the intestines.

To relieve the consequences of Apoplexy, as *Coma* and *Costiveness*, nothing answers better than the use of brisk Cathartics.

In *Paralysis*, the same remedies are beneficial.

In *Hydrocephalus Internus*, also highly commended—Close connection between this disease and the disordered condition of the Alimentary Canal—In the Liver, evidences of Inflammatory action, and also of undue irritation in the Alimentary Canal—purgative medicines are among the most important of our remedial measures. There is a considerable connection between Diarrhœa in children with Hydrocephalus—Examples may be adduced to show, that symptoms of disease of the head, with convulsions, supervene upon the suppression of a diarrhœa in children—and, again, a diarrhœa during dentition, is often a salutary effort of nature to relieve herself—and much mischief is done by a sudden suppression of the complaint. If Hydrocephalus is produced by the sudden suppression of a diarrhœa in children, upon similar principles, a Hydrocephalus may be relieved and removed by an artificial diarrhœa.

In *Dropsies*—The action of the absorbents promoted by Cathartics—This dependent upon the copious secretions which take place from the surface of the intestines, occasioning a deficiency of serous fluids in the blood-vessels, and

the consequent efforts on the powers of the system to restore the deficiency which has taken place—the energy of the absorbents thereby roused into action.

The use of Cathartics in Dropsies of an ancient date, and probably may have been suggested by the occasional natural cure of Dropsy by a spontaneous diarrhœa. Their employment should be regulated with some caution and discrimination—Improper where the constitution is much broken by age, long continued disease, or intemperance—useful in an opposite state of the system—the form of Dropsy to which they are best adapted is ascites.

Many other diseases might be enumerated in which they afford relief, but the description would only cease with the detail of most of the diseases incidental to the human body.

Having pointed out the nature of their operation, with their positive and relative effects, and their application in the diseases of most common occurrence, I proceed to the consideration of the Individual Cathartics.

PARTICULAR CATHARTICS.

DIVIDED into Vegetable and Mineral—Under the first, will consider of the

Family *Euphorbiaceæ*—*Ricinus Communis*, or Palma Christi—Castor Oil.

Natural History—Native of the Indies, but grows well in this country—The seeds are the part which furnish the oil, and from their resemblance to the *Ricinus*, or Tick, the plant has received the same name.

Description of the plant.

Stem round, thick, purplish red color, and rises to the height of six or eight feet.

Leaves large, divided into lobes.

Flowers arranged in spikes.

Capsules, three celled and three seeds.

The oil is prepared from the seeds by expression and decoction. The former is the best, and is obtained from the seeds by means of a powerful hydraulic press. It is limpid, and destitute of color and smell.

Process of preparing the oil by decoction described.

Medical uses.—Castor oil is one of the mildest and most extensively employed articles of the M. M. It is so innocent in its operation, and at the same time so salutary, that it is administered without hesitation in the commencement of sickness, and is one of the substances most commonly re-

sorted to before professional aid is required. It does not stimulate the bowels in any great degree, nor occasion griping, but operates gently, and where the system is but slightly disordered, it is most commonly sufficient to re-establish a healthy action.

In the *diseases of Children*, it is particularly valuable, and to their cases the strength of its impression is peculiarly well adapted. There are few articles which can supply its place, and fewer still, which, in the hands of the common people, who interfere so largely in the diseases of this interesting portion of the species, can so safely be trusted.

Useful in the *Intestinal* affections of adults, and exhibits no less valuable and agreeable results.

In *sedentary* and *costive habits*, well adapted, as it is observed that though it be repeated, the doses may be more and more diminished, leaving the bowels in a soluble state.

Well adapted to cases in which more irritating purgatives would prove hurtful, as in *Nephritic* and *Calculous* cases.

In the various grades of *Colic*, usefulness well known—Cannot be trusted where large evacuations are required—if used, should be preceded by a dose of Calomel. Thus exhibited, it promotes purging, and moderates the severity of the drastic medicines.

In *Dysentery*, much employed—lessens the griping and general distress, diminishes the tenesmus, and the frequent desire to evacuate the intestinal canal. More active articles are generally required, as it is insufficient to expel the morbid contents of the bowels.

Castor oil, the basis of a preparation called the oleaginous mixture, which is employed in the diseases of the Intestines, after their contents have been evacuated. It is prepared as follows :

R. Castor Oil,	℥ ii.
White Sugar,	℥ iii.
Powdered Gum Arab.,	℥ iii.—to be well rubbed
together, add slowly water,	℥ vi.
Laudanum,	℥ss, to ℥ i.

Dose, ℥ ss. to ℥ i. every hour, or two hours, until relief is obtained.

In the place of Gum Arabic, the yolk of an egg, or a thick emulsion of Almonds, or honey, may be employed to promote the union of the oil with the water. In this mixture the taste of the oil is disguised, and we have a very useful preparation.

Besides these diseases, Castor oil is useful in hæmorrhoids, hæmorrhages, and in the complaints of parturient women.

In the *Convulsive affections* of *Infants* and *Adults*, depend-

ing upon irritating substances in the first passages, or upon poisonous articles, as the seeds and pods of the Stramonium, or undigested food, benefit will be derived from a speedy evacuation of them. For this purpose, it is one of the safest articles, and may be used with great freedom—From $\frac{z}{3}$ ii. to $\frac{z}{3}$ iv. may be administered under these circumstances, in divided doses, frequently repeated, until relief is obtained. It is best given unmixed.

Modes of Exhibition—To many persons this article is very objectionable, from its nauseousness and the difficulty of swallowing—May be given floating upon peppermint water—In coffee, or mutton broth—In tepid milk, or lemonade—In any aromatic water, or the Comp. Tinc. of Senna. This last conceals its qualities, and increases its operation—Castor Oil Capsules.

Dose i., ii., or $\frac{z}{3}$ iii. for Adults; Children, $\frac{z}{3}$ i. to $\frac{z}{3}$ ss. In urgent cases it may be increased to a great extent.

Adulterations.—There is at present but little inducement, the plant being cultivated very generally, and the oil obtained with little expense.

A circumstance distinguishing it from other fixed oils is, its extreme solubility in highly rectified spirits—entirely soluble in twice its weight of strong alcohol.

Family *Euphorbiaceæ*—*Croton Tiglium*—Oil of Croton—Obtained from the seeds of this plant.

The medicinal properties of this article have been long known—Revived in the last few years, and introduced into practice.

Natural History—The plant attains the height of ten feet.

Bark is smooth, and of a greyish color.

It produces seeds resembling those of the castor oil plant.

The seeds, and the expressed oil, act as a very powerful hydragogue Cathartic, and hypercatharsis is frequently produced.

The natives of Ceylon are said to take one of the seeds as a dose.

Effects of one of the seeds—It produces no immediate unpleasant taste—When swallowed, a sensation of heat comes on in the fauces and throat, which extends to the stomach and bowels—and in less than half an hour, a violent Cathartic operation takes place.

Appearance of the Oil—When quite pure and fresh, it is colorless.

As met with in the shops, it is viscid and yellowish, even of an orange color.

Smell faint.

Taste acrid, most felt in the throat.

Analysis of the Oil—

Contains, with other principles, Crotonin and Crotonic acid—The active property depends upon the Crotonic acid, which passes off with the fixed oil.

Medical uses—Employed in obstinate Constipation of the bowels, where there are no inflammatory symptoms to contraindicate its use.

In *Maniacal* cases, its use has been attended with success.

In *Dropsy*, and for the expulsion of the *Tape* worm—When a tape worm has been expelled, it has been by the drastic irritating quality of some article like the present.

Croton oil is a useful addition to Castor, or Almond oil, rendering a smaller dose effectual.

Mode of administration—In substance, expressed oil, and tincture—In substance most violent, and therefore is seldom used. The oil is usually administered after the following formula :

R. Croton Oil, 1 drop.
Oil of Caraway, 1 drop.
Confection of Roses, iv. grs.

To be mixed and formed into a pill. The crumb of bread may be used, or the Comp. Extract of Colocynth.

The tincture prepared as follows :

Croton seeds, bruised, ʒ ii.
Alcohol, ½ pint.

Triturate the seeds thoroughly with a small part of the alcohol, then add the rest—digest for ten days, and filter the mixture. The dose is ʒ i.

Adulterations, from its high price, with Olive, or Castor Oil—may be detected by agitation with alcohol, which dissolves it out, and consequently lessens its entire bulk.

External application—Useful as a Counter-Irritant. Its employment produces an eruption in a very short time, without much suffering, and which is very effectual. The eruption much resembles chicken pox.

Manner of using the Oil—An erythematous redness soon produced with extended inflammation. In a few days, many little vesicles of the size of a pin's head make their appearance. Several run together, and are confluent—Contain a puriform fluid—Has been useful in Rheumatism—In affections of the Heart applied to the thorax—in Bronchitis, in Pulmonary diseases, in Local pains.

To restore repelled eruptions—as Scarlatina, Measles, &c.

Family *Euphorbiaceæ*—*Euphorbia Latyris*, or *Caper Tree*—Spurge Oil.

Obtained from the seeds of this plant.

The oil is similar in color to Castor oil. But little odor—no bad taste—mild in its operation—Has been recommended as the most quick and safe of the newly discovered purgatives, and has been administered in cases where there is intestinal irritation.

Diseases in which employed—Fevers, Dysenteries, Anasarca following Intermittents.

Not entitled to the encomiums bestowed upon it. The dose varies with the age. From iii. to iv. drops to xx. or xxx., united with the paste of Chocolate, or syrup, or in a wine-glass of sweetened water.

Holds an intermediate station between Castor Oil and the Oil of Croton.

Family *Jasmineae*—*Olea Europaea*—*Olive Tree*.

Natural History—Tree grows to the height of thirty feet.

Leaves, firm, narrow, lance shaped.

Flowers, white, small, numerous, in clusters.

Fruit, a smooth oval drupe.

The oil is obtained from the fruit by pressure, and is cultivated for the sake of the oil in France and Spain, &c.

Employed in diseases—Externally and Internally.

As an *external application*, long been the custom in Italy to anoint the body with it in Fevers. Its effect upon the pulse decidedly sedative, its application during the space of six hours reducing it from 72 to 52 pulsations in the minute—hence the practice so common in hot countries of anointing the body with oil. Employed also in the plague, and recently recommended in Scarlatina. In this disease its application has afforded much satisfaction—allaying the heat and irritation of the surface—lessening Febrile action—rendering desquamation more easy, and diminishing the risk of dropsy. Instead of olive oil, lard, or a piece of fat bacon, rubbed over the whole body two or three times a day, for ten days, or until relief is afforded.

United with lime water, valuable application to burns—blistered surfaces—Used in the formation of ointments—To inflamed bites, venomous insects, &c.

Rubbed over bedsteads, prevents the appearance of bed bugs.

Internally—It is a mild and pretty certain laxative, less offensive than Castor Oil—Used in all the diseases in which that article is employed—only given in larger doses.

In *Obstinate Constipation* has succeeded after drastic purgatives have been employed, and cases are recorded of its utility. The reason of its efficacy, is, that relying upon its

mildness very large doses are administered, and in this manner, insinuating itself into the bowels, it gradually softens down the feces, allays irritation, and by its stimulus being adapted to the excitability of the canal, may allow the feces to pass onward, where more stimulating articles would excite contraction.

Used where mineral poisons have been taken, but with no particular advantage.

Family *Jasmineæ*—*Fraxinus Ornus*, or *Flowering Ash*—Manna—Obtained from this tree.

Incisions are made in the trunk of a tree, and a sweetish juice flows out in considerable quantity, which concretes upon exposure to the air. Cultivated in Sicily and Calabria for this purpose. (This sweetish juice is obtained from other trees, as the maple, walnut, &c.) This juice gradually hardens upon the bark, and in the course of eight days, acquires the consistence and appearance met with in the shops. The different qualities of Manna dependent upon the circumstances under which it is obtained from the tree, and the impurities which are mixed with the juice.

Chemical Analysis—

Sugar, mucilage, extractive matter, mannite—Preparation—precipitated in small beautiful white needles—Used in the adulteration of Quinine.

Gentle purgative—in some constitutions produces flatulence, heartburn, &c. Seldom used alone, but combined with other cathartics, either to increase its activity, or to lessen the irritating operation of other cathartics. Much employed for children, combined with magnesia, rhubarb, salts, or jalap. Formula for the administration, vide Article Senna. Dose $\frac{3}{4}$ i. to $\frac{3}{4}$ ii.

When given alone to children, as much as they will eat.

Family *Leguminosæ*—*Cassia Senna*—Senna.

Genus *Cassia* contains many species—the *C. Acutifolia*, or pointed leaf, the best.

Natural History—A native of Egypt—Arabia.

Description of the plant.

Leaves oblong, pointed, one inch long, $\frac{1}{4}$ inch wide.

Color yellowish green.

Smell faint, disagreeable.

Taste nauseous, sub-acrid, bitterish.

One of the remedies derived from the Arabians, and when first introduced, the pods were used instead of the leaves, and said to be more efficacious. The fact is the contrary, but they seldom gripe.

Chemical analysis—

Several principles—the most important is termed Cathartine. It is an uncrystallizable substance.

Color yellow, odor peculiar, taste bitter, nauseous.

Medical properties—Active and sure cathartic, seldom given alone, but combined with other cathartics, either to increase their activity, or to lessen the irritating operation of its own action. In the opinion of Dr. Fordyce, the most certain stimulus to the bowels in producing purging of any substance he has ever tried. The principal objection to its use is its tendency to produce griping, though it does not exist in a greater degree than with other resinous cathartics. Its active principle resides in a bitter extract, which is not very soluble. It becomes soluble by union with other cathartics, as the saline—so much so, as to prevent any griping operation, at the same time its activity is increased. Manner of employing it—

Leaves of Senna, $\frac{3}{4}$ ii. to $\frac{3}{4}$ ss.

Warm water, lb i.—Simmer a short time and strain, add

Sulphate of Mag., $\frac{3}{4}$ i.

Manna, $\frac{3}{4}$ i.

The dose is a small tea-cupful every hour, or two hours, until it operates. Thus prepared it is quite active, succeeds after other cathartics have failed.

In preparing the infusion, it should not be allowed to boil, as the active matter is of a volatile nature—neither should it be kept in an uncovered vessel, as the oxygen of the atmosphere combines with the extractive matter, and forms a yellowish precipitate, which gripes violently, but does not purge.

There are no particular indications for the use of this medicine. It relieves costiveness, cleanses the primæ viæ, and removes the constitutional derangements dependent upon these causes.

For children, an infusion of Senna, sweetened with sugar, with the addition of a little milk, given in the form of tea, is readily taken, and operates with much certainty.

Official preparations—Comp. Tincture of Senna—the dose $\frac{3}{4}$ ii. to $\frac{3}{4}$ ss. in any appropriate vehicle. Castor Oil taken upon this Tincture.

Senna administered in the form of infusion as an *Enema*—prepared stronger than for internal use. Oil or salts may be added, to increase its activity.

Adulterations—The leaves of various other plants mixed with those of Senna—Practiced in the following manner :—The branches with the leaves are dried in the sun, the leaves are then stripped from the stems, and these thrown away.

They are collected by the poorer classes, coarsely pounded and mixed with the leaves of other plants.

The seeds of the oriental Senna, obtained from the pods, if planted, would afford a good substitute for the imported article.

INDIGENOUS CATHARTICS.

FAMILY *Leguminosæ* — *Cassia Marylandica* — Indigenous Senna.

Description of the plant.

Stems five or six feet.

Petioles, bearing eight or ten leaflets.

Flowers, bright yellow.

Fruit, a long pod.

The leaves have a resemblance to those of the imported, and said to be nearly equal in activity.

The objection made to it, is, that it is more likely to cause griping pains—May be corrected by the addition of an aromatic, or liquorice root.

In preparing the infusion, a larger quantity of the leaves should be employed than in the preceding instance—a third more.

Family *Juglandæ*—*Juglans Cinerea*—Butter-nut, Oil-nut, White Walnut.

Natural History—The tree grows in various parts of the Union, the wood being useful for various purposes in the arts—the sap is abundant and possesses saccharine qualities from which sugar can be obtained by boiling and evaporating.

The inner bark of the tree, and also of the root, is a mild and efficacious laxative. A watery extract is usually made, being not only more convenient, but more active—was much employed during the Revolutionary War, but has since fallen into neglect.

Its properties may be improved by combination with other articles, as calomel, in the following proportions :

Extract of Butter-nut, 3 ss.

Calomel, grs. x.

Simp. Syrup as much as is sufficient, made into pills of a convenient size.

This article is particularly adapted to habitual costiveness, and many persons whose state of health has rendered them dependent upon the use of laxatives, have been relieved by its use—given in pills.

Dose x. to xxx. grs.

Family *Podophyllaceæ*—*Podophyllum Peltatum*, or *May Apple*—Different parts of the plant endued with different properties.

Root creeping and jointed—when dry, brittle and easily reduced to powder.

Stem a foot in height, smooth, round.

Leaves peltate, palmate, divided by fissures into lobes.

Flower single, and in the fork of the stem.

Fruit ovate, yellowish.

This plant confounded with another, the *Passiflora Inermis*. The same described and the distinctions noticed.

Properties of the P. P.

It is an efficacious cathartic, and might be substituted for Jalap. In doses of a scruple, it is safe and active, and may be administered alone, or in combination with Calomel, or the bi-tartrate of Potash.

Has been employed in *Intermittent* and *Remittent* Fevers, in *Dropsies*—Has not been found to give the least inconvenience when combined with calomel, in the proportion of x. grs. each.

This article might very well be substituted for Jalap, and particularly by practitioners residing in the country, being equal in activity to Jalap, and not more liable to cause griping, &c.

Family *Convolvulaceæ*—*Convolvulus Jalapa*—Jalap.

Natural History.

Root tuberous, fleshy, lactescent.

Leaves alternate, subcordiform, acute, shining surface above, reticulated structure beneath.

Flowers solitary, axillary, violet color.

The root acquires considerable size, generally of the weight of a pound or less. Found in the shops, cut into pieces of various size, and shape.

Found growing in Mexico and South America.

The roots when dried are solid and ponderous, blackish on the outside, grey within, marked with veins.

The quality of the root determined by its hardness, heaviness, and dark color.

Chemical analysis—

Resinous matter, gummy extract, ligneous principle, several salts.

The purgative property resides in the Resin. It exists in different proportions in different roots—much irregularity, therefore, occurs in the operation.

These differences dependent upon the different proportions of their intimate composition. These are influenced by the diversity of soils in which the roots are found, the state of the plant when dug up, and the season of the year.

The gummy part, though large in proportion, is not purgative.

Character of Jalap as a Cathartic—very efficacious—Known to the Mexicans before the discovery of Mexico, and was introduced into Europe in 1610.

It bears the same relation to cathartic substances that Tart. Antimony does to the rest of the Emetics.

It is not so powerful as some others, but it can be resorted to in a greater variety of cases, and the readiness and facility with which it operates, with the beneficial effects which follow its use, entitle it to be considered a very valuable article.

Rarely given alone, but combined with various substances with a view to quicken its operation, to obviate its griping quality, or to enlarge the sphere of its operations.

Combined with the Sulphate of Potash, Bi-Tartrate of Potash—When to deplete the liver, and promote discharges of bile, a few grs. of Calomel may be added. The favorite formula of Dr. Rush x. and x.

The same combination useful as an anthelmintic, and as a hydragogue.

In combination with the Bi-Tartrate of Potash, useful in dropsies—with Ipecacuanha, its purgative properties increased. Triturated with sugar, by which it is reduced to a very fine powder, it operates in much smaller doses. The action of these various articles illustrates the value of medicinal combinations.

The Preparations of Jalap—are Tincture, Resin, and extract. Appearance of the resin—fracture shining, taste feeble, soon becomes acrid and disagreeable—Rarely found pure, being adulterated with other articles—Produces the same effects as the powder, though in smaller doses.

The small dose required—the facility of accurately measuring the dose, might give it a preference—objections to its use. The best mode of employing the article, is in the form nature gives us—in powder.

The tincture of Jalap, a popular preparation.

Jalapine—seldom or never employed.

Adulterations—with Briony root—distinguished by its pale color, and less compact texture.

Convolvulus Macrorrhizus.

This plant introduced, not from its importance, but because it has been figured and described as the plant which affords the Medicinal Jalap—very distinguished botanists having fallen into this error.

The error has been corrected by the patience and zeal of Dr. Coxe, late professor of M. M. in the University of Pennsylvania.

The late Dr. Baldwin experimented with the root, with a view to its medicinal properties, and found that $\frac{3}{4}$ vi. could be taken without any cathartic operation being excited.

Without entering into any particular explanations, will state that it has no pretensions to be so considered.

Convolvulus Scammonia, or *Scammony*.

Natural History—The plant grows in many parts of Asia, particularly Syria.

The root affords this substance, and acquires a considerable size. It contains a milky juice, which, when collected, and allowed to become concrete, affords the substance in question—Method pursued in collecting the juice. The quantity afforded by each root is small, a few drams only—become concrete by exposure to the sun and air.

Scammony of commerce not pure, but is adulterated with various additions, as meal, ashes, sand.

Two sorts of Scammony in the shops—Aleppo and Smyrna. The first is the best, it is in light, spongy masses, easily friable, glossy, of different shades of color, from grey to black—The kind preferred. The Scammony of Smyrna less valued.

Chemical analysis.

Resin, gum, inert vegetable matter.

Medicinal properties—Strong, stimulating, and even drastic cathartic—operating quickly and powerfully.

Employed externally and internally—The diseases—Drop-sy, Hypochondriasis, Worms—Has been of decided utility, but unequal in its effects—Sometimes unsafe from its violence, and again exerts no action. The inequality of action dependent upon the variable quality of the article.

Dose—iii. to x. grs.

Family *Polygonace*—*Rheum Palmatum*—Rhubarb.

Several species of plants belong to this genus. Four species have been considered as furnishing the true Rhubarb—R. Undulatum, R. Compactum, R. Australe, R. Palmatum.

The natural characters of the plant still undetermined.—They flourish in the eastern parts of Asia, comprehending the Asiatic provinces of Russia, Tartary, China, &c.

Character of the plant.

Herbaceous—Root, thick and compact.

Leaves, radical, large size.

Two kinds are met with in the shops.

1. Rhubarb of *China, India, Tartary, Turkey*.

The root of this description is in cylindrical pieces.

Color, dull yellow.

Texture compact, marbled with veins.

Fracture dull and rough.

Odor strong and peculiar.

Taste gritty when chewed.

Tinges the saliva of an orange color.

Powder, fawn color.

Each cylindrical piece is pierced with a hole, through which has been passed a cord, by which they are suspended to the branches of trees, that they may be dried more effectually.

As the roots perform a long sea voyage, they are liable to be damaged. In this state attacked by the worms—Conduct of the merchants—Fraud readily detected. The Rhubarb from the places mentioned is less esteemed than the Russian.

2. The *Russian* is produced from the same plant, and cultivated in the same places as the Chinese. It is more esteemed, from the greater care taken in the selection. It is to the careful examination it undergoes by the agents of the Russian government that it is preferred.

Rhubarb is also cultivated in England, France, and in this country. The *English* Rhubarb is found in pieces long and slender.

Odor disagreeable and nauseous.

Taste astringent, no grittiness when chewed.

In chemical composition, also inferior. The cathartic property is feeble, while its astringent is greater. This arises from the roots being taken up before its properties are matured, in consequence of their decaying in the ground.

Eastern Rhubarb not taken up from the ground until it has acquired it seventh or eighth year.

While the eastern Rhubarb possesses a color more fixed, a stronger odor, and a taste quite aromatic and lightly bitter, the English will be found to have a taste more mucilaginous and herbaceous, and a less degree of strength.

It is difficult to determine, by the appearance of the roots, their real character. Much deception is practiced in artificially preparing the root, so that inferior pieces will frequently be sold for the best.

Of the culture of Rhubarb, little is known. The plant thrives best in sandy soils. The roots are collected twice a year, and those only selected that have attained the age of six years.

When taken up, the roots are deprived of their bark, cut into pieces, suspended on strings, in places well ventilated, excluded from the sun's rays. By this operation, the root loses four-fifths of its weight.

A second operation succeeds. The roots are cleansed

afresh, divided into smaller pieces, and carefully examined, so as to ascertain that they are not damaged.

At Canton, the root is purchased directly from the agents of this company, and others, and it is not selected with the greatest attention to quality at this place. As an evidence, 7500 lbs. of Rhubarb from Canton, were rejected during the month of July, 1848, by M. J. Bailey, M. D., special examiner of adulterated and spurious drugs for the port of New York.

Chemical analysis.

Discovers a peculiar principle, which gives to Rhubarb, taste, odor, color, called Rhein, or Rhabarbarine.

Bitter extractive matter.

Fixed oil.

A small quantity of gum, starch, many salts.

Yellow color of Rhubarb not very destructible.

The acids make no change.

It resists the digestive process, and is observed in several of the secretions of the body. It may be detected in the urine, also the perspiration and milk.

Medical uses—Valuable Cathartic, and derives much additional value from being applicable to purposes for which other cathartics are not adapted. Not very active, but gentle in its operation.

The cases in which it is useful, are those diseases where the patients are much debilitated, where the bowels are much weakened by a long course of medicines, or where from constitutional peculiarities other cathartics could not be employed.

It is endowed with a remarkable combination of medicinal powers—an *astringent*, *cathartic*, and *tonic* principle—Its virtues thereby much enhanced, and becomes particularly useful in many of the forms of intestinal derangement.

Not employed in diseases of a Febrile character, and where an impression is to be made upon the system; chiefly useful in affections of the alimentary canal.

In *Costiveness* well adapted—It is sufficiently purgative without impairing the energies of the *primæ viæ*—employed in the form of pill, at bed time.

The practice of resorting to drastic stimulating pills in costiveness very objectionable—too often confirms the habit it was designed to cure. Habit exerts its power in this particular, in a very remarkable degree—advisable to solicit nature's operations at a regular hour every day.

In *Dyspepsia*.

In *Hypocondriasis*.

In these affections, Rhubarb is a very common article used, but generally combined.

The following preparations are familiar to most persons afflicted with costiveness, or dyspepsia.

1. The dinner pill, composed of Rhubarb and Carbonate of Soda—it is usually taken an hour before dinner.

2. The Peristaltic persuaders, composed of the following articles: \mathcal{R} . Powdered Rhubarb, \mathfrak{z} i.

Powdered Ipecac., grs. x.

Oil of Caraway, grs. x.

Simp. Syrup. as much as sufficient—to be made into a mass and divided into xx. pills.

Dose—ii. to iii. at bed time.

3. The Stomachic pills—prepared as follows :

\mathcal{R} . Powdered Rhubarb.

Powdered Ipecac.

Castile Soap, each, \mathfrak{z} i.

Honey, as much as is sufficient—make into a mass and divide into lx. pills—ii., iii. or iv., twice a day.

In *Dysentery*, the administration of a cathartic will be found very beneficial in the commencement of the disease—Calomel and Rhubarb employed for this purpose—The astringent operation of Rhubarb coming into action when the cathartic has ceased. In the advanced stages, the following compound may be used with advantage :

\mathcal{R} . Powdered Rhub, grs. xxx.

Powdered Ipecac., grs. x.

Powdered Opium, grs. iv.

Honey, as much as is sufficient—make into a mass and divide into xii. pills—a pill to be taken every two or three hours until relief is obtained.

Useful in allaying the tenesmus and griping, which are so distressing.

In *Diarrhœa*, a similar practice equally beneficial, and for like reasons, an astringent operation being exercised. After evacuations from the bowels, the same pills may be employed as in the preceding disease.

The operation of Rhubarb is quickened by combination with other cathartics—as neutral salts, or calomel.

In the *diseases of children*, it is much employed, combined with the carbonates of potash and soda. With the alkalies it undergoes a change of color and properties, and becomes very useful in the intestinal derangements of children following teething—Useful when the bowels perform their functions feebly, where the passages are of a green color, and the dejections slimy and curdled. Formula—

\mathcal{R} . Carbonate of Potash, or Soda, grs. xii. to \mathfrak{z} i.

Powdered Rhubarb, \mathfrak{z} i. to \mathfrak{z} ss.

Water, \mathfrak{z} ii. to \mathfrak{z} iii. m. \mathfrak{z} ii. to \mathfrak{z} iii., for

a dose every two hours, according to age, until relief is afforded. Thus administered, it exerts a gentle cathartic operation, neutralises acidity, and exercises a tonic operation.

In the treatment of these affections, Rhubarb has been used in a variety of ways, and every nurse professing to treat the diseases of children, has some favorite mode of preparing this article. They are generally hurtful by being combined with heating articles, with a view to dislodge wind, or some other fancied effect to be produced.

Other formula—Rhubarb Tea, prepared as follows :

R. Powdered Rhubarb, $\frac{3}{4}$ ii.

Fennel Seed, $\frac{3}{4}$ ii.

Water, 1 pint—boil until $\frac{1}{3}$ is

dissipated—the dose is $\frac{3}{4}$ ss. to $\frac{3}{4}$ ss., two or three times a day—Useful in the diseases of children, especially in colic, which occurs in the first three months—Succeeds after anodynes have failed.

Another formula of much utility in the Intestinal derangements of children or adults.

R. Powdered Rhubarb, $\frac{3}{4}$ ss.

Calcined Magnesia, $\frac{3}{4}$ i.

Powdered Gum Arabic, $\frac{3}{4}$ ss.

Mint Water, $\frac{3}{4}$ vii.

Syr. Morphine, $\frac{3}{4}$ ii., mix.—dose $\frac{3}{4}$ ss. to

$\frac{3}{4}$ i. for an adult, every two or three hours, and for children $\frac{3}{4}$ i., or more, according to age, in the same manner, until relief is afforded.

Syrup of Morphine is prepared as follows :

R. Acetate of Morphine, grs. iv.

Simple Syrup, lb i. m.

A very pleasant preparation in the diseases of children, and so far from refusing, I have known them to call for it.

Other preparations—*Extract of Rhubarb*—Preparation.

When of a good quality, useful as a gentle evacuant, given in the form of pill, alone, or combined with other articles.

Sulphate of Rhubarb, or *Rhabarbarine*—Seldom or never employed.

Tinctures of Rhubarb are purgative and stomachic—seldom employed for the former operation, but used as adjuncts to saline purgatives, for giving them warmth, or to stomachic infusions in dyspepsia, flatulent colics, diarrhœa, the costiveness of old people, and of old phlegmatic habits.

Dose of the Powdered Rhubarb $\frac{3}{4}$ i. to $\frac{3}{4}$ i.

From $\frac{3}{4}$ i. to $\frac{3}{4}$ ss. opens the bowels freely.

From vi. to x grs. for its stomachic properties.

Rhubarb is often recommended to be toasted with a gentle heat until it becomes friable, with a view to improve its

astringency. This, however, is not effected, and its purgative property is destroyed.

Adulterations—The powder is often made to assume a fine buff color by the addition of Turmeric.

Family *Liliaceæ*—*Aloe*—Aloes.

This is the inspissated juice of several species of the genus *Aloe*—a native of Africa, but also found in the other quarters of the globe.

Several varieties of the Aloes—the Socotrine, the Hepatic, or Barbadoes, and the Caballine, or Horse Aloes. Socotrine, so called from being brought from the Island of Socotra, at the mouth of the Red Sea, is the best.

The different kinds mentioned, differ in being produced from different species of the *Aloe* plant—The Socotrine, from the *Aloe Spicata*—all, however, are more or less employed.

Root perennial, strong and fibrous.

Leaves narrow, tapering, thick and fleshy, succulent, edges spiny.

Flower stem rises to the height of three or four feet, smooth, erect.

Flowers in spikes, of a purplish or reddish hue.

The extract is prepared from the leaves by expression—the juice is then evaporated in shallow vessels.

Appearance of the extract.

Surface glossy, clear.

Color, yellowish red—when powdered, a golden hue.

Taste intensely bitter, with an aromatic flavor.

Smell not unpleasant.

Chemical analysis—

An extractive principle, by some called a gum.

Resinous matter.

Properties of the gum.

Taste intensely bitter.

Odor faint, resembling saffron.

The cathartic property resides in this principle, the resin has no purgative virtue.

The medicinal properties of Aloes were long known, and were held in much repute by the ancients. Few articles have been combined in a greater variety of forms, or of which there have been more numerous preparations—Many of them have fallen into disrepute.

In large doses, its effect is to make a strong impression on the alimentary canal, exciting often colicky pains, with very fluid dejections. Its action is exerted chiefly upon the large intestines, a feeling of warmth being experienced in the fundament after each operation from the bowels.

of Aloes, and Hooper's Pills, being employed for this purpose.

The compounds in which this article has entered in large proportions, have enjoyed a great deal of celebrity, and the titles of some of these medicines excite derision at the present day. They are the Elixir of Long Life—the Sacred Tincture—the Elixir de Proprietatis—the Pillulæ Angelicæ, &c.

Aloes enters into the formation of *Cathartic Pills*. There are a number of formulæ for this purpose—as Anderson's, Dixon's, Lee's—for the formulæ of these preparations—vide Paris Pharmacologia.

The following formula will be found convenient, and sufficiently active :

R. Powdered Aloes, 3 i.

Powdered Gamboge, 3 ii.

Tartarised Antimony, grs. iv.

Honey, as much as is sufficient—make into xxiv.

pills. Three of the pills to be taken at bed-time, and two in the morning, if required ; or,

Powdered Aloes.

Powdered Gamboge.

Calomel, each. 3 i.

Honey, as much as is sufficient—make into a mass and divide into lx. pills—ii. to iv. a dose.

As an *Anthelmintic*, particularly in the treatment of the *Ascaris Vermicularis*, or *Ascarides*, highly deserving attention, whether taken internally, or used in the form of enema—vide *Anthelmintics*.

Objections to Aloes—Its tendency to produce hæmorrhoids ; cannot subscribe to this objection—the complaint, most probably, originating in the costive habit which had existed for some time.

Where it does take place, the predisposition must have existed in a considerable degree. When they exist, improper to resort to this medicine—Improper also during the existence of the catamenial secretion.

The long continued use of this article, gives rise to symptoms of *Tenesmus*—use should then be discontinued.

Official Preparations—These have been numerous, but are now reduced to a few. They are the compound Tincture of Aloes and Myrrh—The compound decoction of Aloes.

And pills of Aloes and Myrrh—vide *Dispensatory*.

Another preparation useful in costive habits, occurring in nervous constitutions, with its usual attendants, headache, and general disorder.

R. Powdered Socotrine Aloes.

Powdered Myrrh, each, $\frac{3}{4}$ i.

Saffron, $\frac{3}{4}$ i.

Ext. Liquorice, $\frac{3}{4}$ ss.

Carbon. Pot. $\frac{3}{4}$ ii.

Water, $\frac{3}{4}$ xvi.—boil to $\frac{3}{4}$ xii.,

then filter and add

Tincture Cardamom, $\frac{3}{4}$ i.

Dose— $\frac{3}{4}$ ss. to $\frac{3}{4}$ i. for an adult, night and morning.

The operation is very mild, and it is useful in dyspeptic conditions of the stomach.

Dose of the Extract ii. to vi. grs.

Family *Guttiferae*—*Gambogia*—Gamboge.

This is the concrete, gummi-resinous juice of a tree growing wild in Gambogia, Ceylon, &c., and called by botanists, *Stalagmitis Gambogioides*.

The juice is collected in drops, as it falls from the leaf stalks, or young shoots, when broken from the tree, or by incisions; inspissated by the heat of the sun, and made into rolls.

Color, of a deep yellow.

Smell, none.

Taste, slight acrimony.

Solvents, water, alcohol, and sulphuric æther.

Chemical Composition.

Gum, 20 pts.; resin, 60 pts. in 100.

A very active cathartic, operating often as an emetic—in larger doses it makes an impression strongly irritating, and excites copious discharges, with colicky pains, from the severe contractions of the muscular fibres of the intestines.

From its solubility it occasions vomiting, nausea, and other distressing symptoms, the effects being proportioned to the dose. The correctives of these symptoms would be some powder of a softening nature—as Mallows, Liquorice, Cream of Tartar, Gum Arabic. The substances acting as correctives, by separating the particles of the Gamboge from each other, prevent an impression from being made too great, or too long continued.

Has been employed in *Febrile diseases*, though but in a very limited degree at the present time—and among the greatest improvements in the present practice of physic, is abstaining from those violent purgative doses formerly so much in vogue.

Dr. Rush's practice in Yellow Fever—this condemned.

In *Dropsies*, but rarely employed, being too violent for the generality of these cases, which will not support the excess

sive and debilitating discharges of this medicine—Has been used dissolved in Sulphuric Æther—its stimulus supporting the system under the discharges by the bowels.

Useful where *worms* are to be expelled, its operation being considered sufficient to occasion their expulsion, or to remove from the system the mucous it contains.

A better practice is to administer an anthelmintic, and after the worm has experienced its debilitating influence, this, or other cathartics, may be administered.

Readily perceive the advantages which attends this practice, and particularly useful in cases of Tænia.

Gamboge enters largely into the formation of Cathartic pills—united with Aloes, they modify the action of each other—Formula—vide Aloes.

The compound pills of Gamboge, are prepared as follows :

R. Powdered Gamboge.

Powdered Aloes.

Powdered Cinnamon, each, 3 i.

Hard Soap, 3 ii.—Mix the pow-

ders together, then having added the soap, beat the whole together until they are thoroughly incorporated.

The dose is grs. v. to ʒ i.

Family *Cucurbitaceæ*—*Cucumis Colocynthis*—Colocynth, or Bitter Cucumber.

A plant of the gourd tribe, growing in Turkey.

Description of the plant.

Stems slender, trailing, covered with short hairs.

Leaves petiolated, sinuated, green above, whitish underneath, hairy.

Flowers yellow, axillary, solitary.

Fruit furnishes the medicine, size of an orange, cellular, with pulpy matter, and many seeds—the spongy, membranous part of the fruit, directed for medicinal purposes.

Taste nauseous, acrid, very bitter.

Colocynth is a very active cathartic, its properties having been long known, even to the Greek and Arabian physicians. It is an article of extreme activity, and often attended in its operation with the most severe and distressing effects, even to the production of enteritis—Should be employed with great caution, or be rejected in its natural state from practice.

A popular medicine is prepared from this apple—digesting one of them in a pint of spirits—dose half oz.

If employed in this state, it should only be used in diseases admitting of violent remedies, in diseases of the brain, mania, melancholia, coma, apoplexy.

Although condemning this article, the same sentence should

not be passed upon the preparations from it. An extract may be prepared in combination with other cathartics, in which the violent operation is corrected without destroying its purgative energy. This extract illustrates the influence of medicinal combination in a more striking manner than any which have been presented to you. It is prepared by adding to Colocynth other articles equally as energetic, yet the resulting compound is so modified as to be safe and manageable. The extract is the only form of this medicine which should be employed.

In combination with Calomel, a very effectual purgative, for evacuating the bowels, and correcting the functions of the biliary system.

The formula recommended, as follows :

℞. Ext. Colocynth Comp., ʒ i.
 Calomel, grs. xv.
 Tart. Antimony, grs. i.
 Oil of Carui, gtt. v.—Make into a mass, and divide into xxiv pills. The dose i., ii., or iii., every night.

Another formula, in which, when to the cathartic, we wish the alterative operation of the medicine, as follows :

℞. Ext. Colocynth Comp., ʒ iv.
 Ext. Hyosciamus, ʒ ss.
 Blue Mass, ʒ i.—Mix and divide into xxx. pills. Dose, ii. to iv., at bed-time.

Preparation of the Comp. Extract of Colocynth—by digesting in alcohol, Colocynth, Aloes, Scammony, and Cardamom Seeds, and afterwards evaporating the tincture to the proper consistence—A certain and powerful purgative, and generally operates without much griping or inconvenience.

It may be combined with Calomel, and in cases of spasmodic pains of the bowels, with Opium.

Dose of the substance, iv. to vi. grs. Of the Extract—the same.

Same Family—*Momordica Elaterium*—Wild, or Squirting Cucumber.

Native of the South of Europe.

Root large and fleshy.

Leaves, heart-shaped, rough.

Flowers, dull yellow.

Fruit pendulous, elliptical, blunt, two inches long—nearly allied to the cucumber and melon—Fruit the part which furnishes the medicine, and when ripe, upon being touched bursts and throws its contents a considerable distance, hence the name—All parts of the plant are bitter, and strongly purgative; but the dried acrid juice, or fecula of the fruit

known in the shops as the Elaterium, is the part medicinally employed.

The method of preparing it from the fruit—

The juice is obtained from the ripe fruit, and when strained is set aside to settle—the thicker subsides, while the thinner is poured off—the thicker which remains is filtered, covered with a linen rag, and dried with a gentle heat.

The activity of the article will be proportioned to the care taken in the preparation—for it sometimes happens that the juice contains some portions of the fruit which is inert, and which will lessen its activity.

The quantity of active matter in each fruit, is extremely small, and it is of a resinous nature.

Two kinds of Elaterium to be found in the shops.

The *White* prepared as mentioned.

The *Black*, containing with the juice much coloring and extractive matter—a weaker preparation, and requiring a larger dose.

Elaterium is a very powerful Cathartic, among the most active of the *Materia Medica*—In small doses, augmenting the enteric secretions, so that the alvine discharges exceed in quantity those which are produced by any known purgative.

In the quantity of $\frac{1}{4}$ to 1 gr., night and morning, it will induce and sustain a cathartic action, which will remove from the bowels from two to four quarts of fluid in the twenty-four hours.

Its full effects not obtained, until it has been taken several days, when its specific and peculiar operation will be produced.

Has been recommended in *dropsical diseases*, and particularly Hydrothorax—Dr. Ferriar's testimony in its favor, and cases cited by him of its efficacy.

The dose to begin with is $\frac{1}{4}$ to $\frac{1}{2}$ gr.

The effects in full doses are severe, and constant vomiting with frequent stools.

Has been proposed as an alterative remedy in diseases of long standing, but with what success employed, has not yet been determined.

Carbo Ligni—*Charcoal*—Preparation—properties various—Has been recommended for its purgative operation, and particularly in obstinate constipation, given in large doses.

Has the particular good quality, that it will remain upon the stomach, and even seems to allay irritability of this organ.

Has been employed in *Yellow Fever* with this intention—Employed also in derangement of the *digestive* system. Per-

sons, in these diseases, who are distressed with headache, sore mouth, acid eructations, confined bowels, &c., have been much relieved. These complaints of frequent occurrence with delicate females, who, from feebleness of constitution, or sedentary habits, are afflicted with the above symptoms. A tea-spoonful of finely levigated charcoal, taken two or three times a day, in water or milk, has been found very beneficial, exerting the very favorable influence of removing these symptoms, and keeping the bowels regular.

Berberis Vulgaris---*Barberry*.

A native of England, but naturalized in this country.

The bark of this plant, especially the root, is bitter and astringent, and has been used with success as a gargle in aphthous sore mouth---It is possessed of Cathartic properties, and was formerly used in the treatment of Jaundice, originally in consequence of the yellow colour of the root.

From analysis, it is shown that this root contains a new principle, which is called Berberine, of a brownish or yellow color, and very bitter taste.

The article operates like Rhubarb, and with equal promptness and activity.

In doses to ii., v., or x. grains, it only aids the bowels---of xv. or xx. grains, it acts upon them, without inducing tormina or uneasiness.

MINERAL CATHARTICS.

THEY are but few in number, and the most important is *Calomel*, or according to the present chemical nomenclature, a *Proto Chloride of Mercury*---

Preparation---One of the most valuable articles of the M. M.---its properties numerous, and diversified---being Emetic, Cathartic, Sialogogue, Alterative, Expectorant, and Anthelmintic.

Its cathartic property only at this time considered, and there is seldom a case in which it may not be given alone, or combined, so as to meet the several indications.

It imparts force to the mild, and moderates the activity of the drastic medicines.

It commences its operation higher in the alimentary canal, by which it often relieves the stomach by determining downwards. It depletes the liver and the other chylopoietic viscera---Hence its value in Fevers, particularly in those called Billious, when the secretion is apt to accumulate in the

upper portion of the intestines, producing great anxiety, languor, and oppression.

Not only useful in these Fevers by its depleting operation, but by its alterative, correcting the secretions of the liver—increasing them when deficient, and lessening them when in excess.

It promotes the operation of other cathartics, without exciting any additional irritation, or rendering them liable to act with violence. In diseases advantageously combined with them, and greater benefits derived than from employing single medicines.

Combined with Emetics, it renders their operation milder, and more effectual.

Easy of exhibition—from its small bulk and insipidity, it may be administered in many cases, when other articles would be rejected.

In irritable conditions of the stomach, can be employed.

In the diseases of children, it is highly useful—it is easily disguised, the dose is small, it operates mildly, and seldom salivates.

When continued in diseases, it will salivate, whether it purges or not. It is a common impression, that to produce salivation its purgative effect must be restrained. This, in many cases, is correct, for salivation is retarded by the mercury's passing off by the bowels—but it sometimes happens that patients are most easily salivated, whose bowels are most susceptible of its purgative operation.

Rules on this subject.

1. To avoid giving calomel in large doses on two successive days, without employing some other medicine, in order to remove it from the system.

2. It should never be given in frequent doses, when there is but little diseased action, for the system seems most susceptible, when the excitement is not much above the healthy state.

3. Salivation is prevented by combining six or eight grains of Calomel, with about three times the quantity of Jalap, or some other vegetable cathartic.

These rules of some importance, salivation being always painful, and very distressing to convalescents.

Conclude my remarks upon the cathartic operations of this article—Its other properties considered hereafter.

Dose—v., x., and xx. grs.

By increasing the dose of this article, its purgative operation is not augmented.

Forms of administration—in powder, mixed with some tenacious substance—in pills.

If ever violent in its operation, it is owing to the admixture with it, of a small portion of Corrosive Sublimate.

Sulphur—a simple combustible substance. It exists in nature, simple, and combined—It is found in the inorganized and organized kingdoms—In the organized in some plants, as garlic, in mustard, in assafoetida, and in many other plants—In animal substances, as in eggs, in urine.

In the Inorganized, as in volcanic countries, and with minerals—It is separated by heat, by a process called sublimation.

Properties—

Color, bright yellow.

Taste, little.

Smell, little—very inflammable.

Medical uses—Its effects may be considered, as they are of a local, or general nature.

Of its *Local* action on the alimentary canal—In doses of $\mathfrak{z}\text{i}$. or $\mathfrak{z}\text{iii}$., or more, it operates as a gentle laxative—Its action is chiefly exerted upon the large intestines and rectum.

The cases to which it is well adapted, are costiveness, and in hæmorrhoidal affections. For these purposes it is well suited by its mildness, and by evacuating the large intestines, without straining, which always exerts a very bad influence on these tumors. It is usually combined with Calcined Magnesia in equal proportions. The preparation preferred, is the Sulphur Præcipitatum, of each $\mathfrak{z}\text{i}$.

In smaller doses, and repeated frequently, it is absorbed. It enters the circulation, excites the action of the heart and arteries, and some of the secretions, particularly those of the skin and lungs—A very offensive gas is given off from the same surfaces, viz : Sulphuretted Hydrogen. It is also found in some of the secretions, as the urine and milk.

From its effects upon the vascular system, in increasing its activity, as well as upon the secretions, it has been used in the diseases of the general system.

In *Intermittents* during the intermission, and with good effects—Its good effects are soon manifested, and a suspension of the disease follows. It is given in doses of $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{iii}$., three or four times a day, in milk or brandy.

From its action upon the skin exciting perspiration, it has been employed in other diseases of the general system—In *Chronic Rheumatism*, alone, or combined with Guaiac—Atonic Gout, in Catarrhs, and other pulmonary diseases, combined with Antimonial Powder—In *Asthma*, when of a chronic character, and resisting other remedies—In *Asiatic Cholera*.

Supposed to have possessed the power of arresting salivation—for this purpose it is wholly inefficient.

In diseases of the *skin*, it is much celebrated, internally used and externally employed, in the form of ointment.

Its curative powers in Scabies, depend upon its poisonous influence over the itch insect, (*Acarus Scabici*), a little parasite.

When objected to on account of its odour, other substitutes, as Sulphuric acid, with lard, or diluted with water in the proportion of $\mathfrak{z}\text{i}$. of acid to $\mathfrak{z}\text{viii}$. of water.

The curative operations of Sulphur, are promoted by combination with other articles—as the Muriate of Ammonia, in the following formula :

R. Flowers of Sulphur,	$\mathfrak{z}\text{i}$.
Powdered Muriate of Ammon,	$\mathfrak{z}\text{i}$.
Lard,	$\mathfrak{z}\text{ii}$ ss.—Mix.

This serves for four inunctions, and the patient must be rubbed every night, and the inunction continued, even after the disease has disappeared, in smaller quantities.

To the external, the internal use should be conjoined—also combined with the White Hellebore, as follows :

R. Flowers of Sulphur,	lbss .
Powdered White Hellebore,	$\mathfrak{z}\text{ii}$.
Nitrate of Potash,	$\mathfrak{z}\text{i}$.
Soft Soap,	lbss .
Lard,	lbss .
Oil of Bergamot, gtt.	xxx.—This is

more efficacious, but more irritating; or—

R. Flowers of Sulphur,	$\mathfrak{z}\text{ss}$.
Borate of Soda.	
Muriate of Ammonia, each	$\mathfrak{z}\text{ss}$.
White Præcipitate,	$\mathfrak{z}\text{i}$.
Simple Ointment,	$\mathfrak{z}\text{i}$.—Mix.

Another mode of employing Sulphur in the diseases of the skin, is in the form of Sulphurous Fumigations.

This practice introduced by Dr. Gales, of Paris, in the treatment of Scabies, and he was led to it, by the fact, of the disease having its origin in animalculæ, and Sulphur applied in the state of Sulphurous acid gas, would be much more efficacious.

Various plans of applying the fumes were employed, subjected to many objections. They have all yielded to the more convenient, and efficacious method, of having a bath, or fumigating chamber made perfectly tight, into which the Sulphur is introduced, after having been volatilized outside. The patient being seated naked within, has his body com-

pletely surrounded by the fumes, the head being the only part freed from their action.

The forms of disease which have been found to yield to this treatment, are Scabies, Herpetic affections of one and two years continuance—Herpetic ulcers connected with a scrofulous habit—Paralysis, glandular swellings, chronic rheumatism.

The success which attended the application of the fumes of Sulphur, was confirmed by a report of the committee of the most distinguished physicians of Paris, and the beneficial effects which have been conferred upon the human race, by its introduction into camps, and hospitals, has been truly great.

Sulphur combined with the *alkalies*, forming *Sulphurets*, is much employed in the treatment of cutaneous diseases. It is used as a wash in Tinea Capitis, or Scald Head, a complaint common and obstinate, according to the following formula :

R. Sulphuret of Potash, ʒi. to ʒii.
Water, ʒviii.

The head is first to be well washed with soap and water, and the wash applied twice a day—Very obstinate cases have been speedily cured after this manner.

The Sulphurets are also employed in the form of baths in the treatment of cutaneous diseases. In the form of bath they are much esteemed, and the practice is at present in much repute in Europe, being employed in all the large cities of France, and in the charitable institutions of that country.

For the preparation of the bath, vide Dispensatories.

Employed also in the treatment of *Ring Worms*, herpetic affections, obstinate cutaneous diseases.

Employed also in the *Cachectic* diseases of children—in enlarged and indurated conditions of the lymphatic system, in scrofula, rheumatism.

Thus employed, it improves the condition of the skin, gives to it softness—developes its tone, and vital energies.

Sulphur is useful in the form of *Mineral Waters*—Sulphur springs are very abundant, and are known by their offensive odor, are clear when the water is taken up, and emit air bubbles.

Smell strong, sulphurous and foetid.

Taste nauseous, and bitter.

They are useful in cutaneous affections, and in scrofula, and are employed externally, and taken internally.

They have also been recommended in bilious complaints, dyspepsia, general want of action in the alimentary canal, and in calculous cases.

They are useful in all those cases which require purgatives, and which are benefited by Sulphur.

The quantity drank is from a pint and a half to 4 pints, at moderate intervals.

Official Preparations—Sulphur Præcipitatum, or Lac Sulphuris, or Milk of Sulphur—Preparation.

Carbonate of Magnesia.

First employed by a canon at Rome, in the early part of the 17th century, under the name of Magnesia Alba, or Count Palma's powder.

It was a secret in the possession of a few persons, until its properties were made known by Lancisi, in 1717, and afterwards by Hoffman, in 1722.

It is found in the Inorganised kingdom—native, in sea, and mineral waters, in combination with various acids.

In the organised kingdom—found in some vegetables, as Salsola Kali—In animals, as in the urine, and in urinary calculi.

Obtained most commonly from sea water, from the Bittern after the separation of common salt—Also, from a mineral called Dolomite.

Properties—very light—consists of water, carbonic acid and magnesia—the two former in large proportions, not less than 55-100 per cent., as proved by calcination.

Magnesia, an article of much utility in medicine, but uncertain in its operation, its activity depending upon its meeting with an acid in the stomach—When an acid exists, a neutral salt is formed, and a purgative operation takes place—When there is no acid, there is no action.

Carbonate of magnesia is an objectionable article in many cases—In consequence of the disengagement of carbonic acid in the stomach, it is productive of unpleasant symptoms, as flatulence, griping, and other uneasy sensations, particularly in weak bowels. On this account the calcined magnesia is preferred, particularly when it is administered to children.

The calcined magnesia is prepared by exposing the carbonate to heat for a certain time, by which the carbonic acid is driven off, and the article is in a state of purity—Equally purgative when given in half the former dose—It is deprived by this process of many disagreeable qualities, and acquires others which give to it additional value.

In children, becomes particularly valuable, in consequence of the prevalence of acidity in the first passages, by which they are distressed with cramps and colicky pains. This article in these cases is eminently useful, and should always be given in the state of calcination, otherwise it may aggravate the symptoms it was designed to cure.

With it several preparations are made, which are much

resorted to for the relief of many of the symptoms of intestinal derangement.

They are Dalby's Carminative, the formula for which may be seen in Paris's Pharmacologia.

Another formula recommended by Dr. Dewees, as follows :

R. Calcined Magnesia,	℥i.
Water,	℥i.
Tincture of Assafoetida,	gtt. lx.
Laudanum,	gtt. xx.

The dose is twenty drops—if not relieved, to be repeated in an hour or two.

Magnesia is employed in the treatment of Calculous complaints with great benefit—Of its use in these cases, I shall speak on a future occasion.

The dose for a Cathartic operation is ʒ ss. to ʒ ii., given in water or milk.

The habitual, or long continued use of magnesia, has sometimes occasioned distressing symptoms from its retention in the bowels—It is found accumulated in the colon.

Useful as a counter poison where the mineral acids have been taken in large quantity, either by accident or design. It combines with the acid, deprives it of its acrimonious properties, and is converted into a saline substance by no means deleterious.

NEUTRAL SALTS.

THEY hold an intermediate station in their operation, between Laxatives and Purgatives. They are employed for evacuating the contents of the bowels. This is done by exciting the exhalents of the intestines to pour forth a large secretion, by which the system is depleted—Hence their use in excited states of the system, reducing action and lessening inflammation, and from this operation they are called "cooling medicines."

Sulphate of Soda, Glauber's Salt.

It is procured from the residuum of several chemical processes, particularly after distilling muriatic or hydrochloric acid, from the chloride of sodium by sulphuric acid.

It is a very common and useful cathartic. It contains much water of crystallization, which evaporates upon exposure to the air—hence it is termed an efflorescent salt. When the water is evaporated, half of the usual dose is sufficient.

This salt is more nauseous than the other saline preparations, but it is also more active—No method of disguising its

taste, but it is less disagreeable by being taken in a small quantity of fluid—It is also less active—The energy of saline substances seems to depend upon their being dissolved in a large quantity of fluid—Hence the activity of Seidlitz powders, of sea water, of mineral waters generally.

Formula for the administration of this salt :

R. Glauber's Salts, ζ ii.
 Antimony Tart., grs. i.
 Lemon Juice, or
 Vinegar, ζ i.
 Water, ζ viii.—mix — dose

ζ ss. to ζ i., every two hours until it operates.

Sulphate of Magnesia.

Found native—and obtained by evaporating waters which hold it in solution, as Epsom springs in England—hence the name applied to the salt—also from sea water, and from a mineral called Dolomite.

This article is mild in its operation, and agrees well with the stomach. Sulphate of Soda sometimes substituted for it—The fraud readily detected.

Enters into the formation of the black draught.

R. Sulphate of Magnesia, ζ ss.
 Infusion of Senna C., ζ iss.
 Tincture of Senna, ζ i.
 Syrup of Ginger, ζ i. m. as a purgative

draught.

Phosphate of Soda has lately been introduced, and is less unpleasant to the taste than the other salts, being a good substitute for them—particularly when there is any tendency to nausea. It possesses no particular advantages—Preparation.

Tartrate of Potash and Soda, or Rochelle Salt—Preparation—Most agreeable of the saline preparations, but less active, requiring a larger dose.

Sulphate of Potash—Sal Polychrest—Vitriolated Tartar—Preparation—Not very Soluble, and is seldom employed, but in combination with other cathartics, as Jalap, Rhubarb, the operation of which it promotes, as already mentioned.

To the taste it is rather bitter, and acts as a gentle cathartic in the dose of ζ ii.

Of other Neutral Salts—the Bi-Tartrate of Potash, the Nitrate of Potash, &c., I shall speak under other heads, where they can more properly be introduced.

MINERAL WATERS.

THOSE particularly noticed, remarkable for the saline impregnations, being an agreeable form of administering purgative medicines.

They have been known to mankind from great antiquity, and were employed externally and internally for the prevention and cure of diseases. Homer speaks of tepid and cold springs—the Asclepiadeæ erected their temples in the neighborhood of Mineral Waters. Hippocrates speaks of them, and Pliny notices their medicinal properties.

General observations upon the composition of Mineral Waters.

The small quantity of active ingredients they contain—their number—their extensive dilution.

The gaseous substances which are combined in a mineral water, are deserving of much consideration. The precise operation of these agents is not well known, but the effects of a gaseous water are more powerful, in proportion to the suddenness of the expulsion of the air, and therefore to the looseness of its adhesion to the water, with which it is combined.

The Mineral Waters alone brought to notice, remarkable for their saline impregnations, and of which imitations are made, or rather attempted.

Seidlitz Salt—the product of a spring near Seidlitz, in Bohemia—the water was long neglected by the inhabitants, until it was brought into notice by Hoffman.

The taste of the water is very saline and bitter, but not acidulous or brisk.

From analysis, its principal active ingredient is Sulphate of Magnesia, and to this is owing its bitter, saline taste, and purgative property.

The quality of the water is similar to that of the Epsom spring in England, as ascertained by Hoffman.

The effect of this water is in a high degree purgative, greater than might be supposed from the quantity of active ingredients.

The salt is obtained at the spring by evaporation and crystallization, and sold as the Seidlitz salt.

The popular draught from the Seidlitz powders, made in imitation, has no property at all to be compared. It is composed of two different powders—one contained in the white paper, consists of

Tartrate of Potash and Soda, or	
Rochelle Salt,	3 ii.
Bi-Carbonate of Soda,	℥ii.—make a powder.
That in the blue paper, of	
Tartaric Acid, grs.	xxxv.

They are dissolved in separate vessels containing small portions of water, one which has been sweetened, and drunk during the effervescence.

Sea Water is the strongest in saline matter, of all the natural waters.

It contains by analysis, several distinct salts, as follows :

Chloride of Sodium.
 Chloride of Magnesium.
 Sulphate of Magnesia.
 Chloride of Calcium.
 Iodine, and
 Bromine.

These proportions will vary somewhat, according to situation. A pint is a dose, and it will, in general, remain upon the stomach, unless it is very irritable, and prove purgative.

It can be persevered in a considerable time without debilitating the stomach and intestines, or impairing the digestive powers. When used for its purgative operation, it should be brought several miles from the shore, from the sea.

It is not so much employed internally, as in the form of baths, &c., in weak habits, and in scrofulous constitutions. Its powers in this respect have been long extolled by Dr. Russell, and others, and it is the common practice in England to resort to various watering places on the sea shore, to enjoy the benefits of sea bathing, and the internal use of the water.

The efficacy of sea bathing has of late attracted the attention of our community, and it is considered a very important therapeutical agent in many chronic diseases, particularly when the digestive organs are concerned. It may be used according to the strength of the patient, in the form of cold or warm bathing, and in either manner employed, has been found very efficacious in restoring the tone of the digestive organs, and promoting the healthy operations of the system. The stimulus of the salt bath on the skin, will be much aided by the flesh brush.

Another mineral water which furnishes us with a purgative salt, is *Cheltenham* water, though it possesses also chalybeate properties.

It contains the following principles :
 Sulphated Soda.

Sulphated Magnesia.
 Chloride of Sodium.
 Muriated and Carbonated Magnesia.
 Selenite.
 Oxyd of Iron.
 Carbonic acid gas, a large quantity.

From this analysis, it is decidedly saline.

It is also chalybeate.

Contains much carbonic acid.

Cheltenham water will not keep well, the active principles being precipitated. The water is evaporated at the springs, and the salt is obtained by crystallizing. A moderate dose operates effectually as a cathartic, and also in a very gentle manner. It is imitated by the apothecaries, and a factitious powder prepared, composed of the

Sulphate of Soda.
 Sulphate of Magnesia.
 Chloride of Sodium.
 Sulphate of Iron.

This compound is inferior to the imported article, but still active in a small dose, from the mixture of salts.

This water, as drank at the spring, is useful in persons laboring under hepatic derangements from long residence in hot climates, also in scorbutic affections of the skin.

In the United States, the principal mineral waters, are those of Saratoga and Ballston, in the State of New-York.

Ballston Spring water—

Carbonic Acid Gas.
 Chloride of Sodium.
 Chloride of Calcium.
 Chloride of Magnesium,
 Carbonate of Lime.
 Carbonate of Magnesia.
 Carbonate of Iron.

Congress water contains—

Carbonic Acid Gas.
 Chloride of Sodium.
 Hydriodate of Soda.
 Bi-Carbonate of Soda.
 Carbonate of Lime.
 Carbonate of Magnesia.
 Carbonate of Iron.
 Hydro-bromate of Potash.

The Carbonic Acid Gas is a very important principle, to which many of the properties of the water are owing.

It holds the Iron and Salts in solution—gives to the water

its agreeable, pungent, and subacid taste—excites exhilaration of spirits, &c.

To the Chloride of Sodium, or common salt, its purgative properties are owing. That a substance with which we are so familiar, should be so powerful a cathartic as the Saratoga water is known to be, would appear surprising. The activity of the water much augmented by the combination of salts.

The Iron is another important ingredient.

These waters are adapted to diseases which proceed from a disordered state of the alimentary canal, from obstructions of any of the viscera—of the biliary organs.

ENEMATA.

SUBSTITUTES for purging, and serve some important purposes.

They are useful to evacuate the rectum, but principally to promote the operation of cathartic medicines.

They cannot pass higher up than the valve of the colon, and consequently they can only act upon the large intestines—cannot supply the place of purgatives by the mouth.

Their preparation—Instruments described.

In purchasing a syringe, let it be large, the walls of the cylinder unyielding, and with a good leather valve.

Self-injecting Syringe—With this syringe the bowels can be distended with any quantity of fluid, so that by simple distension alone, any obstruction may be overcome. The advantages attending its use—can be administered by the person himself.

The pipe can be introduced under the bed clothes, and thus any exposure prevented. The same instrument used for evacuating the stomach of poisonous substances.

Other instruments—the Irrigateur of the French, one of the best for the purpose—the same explained.

When more powerful enemata required—Tobacco, in the form of infusion, or smoke—or a suppository of tobacco, or a cigar.

Cold or iced water, used to overcome obstinate costiveness walking over a hearth barefoot, or throwing cold water over the thighs, and legs, have been productive of the same effect.

Enemata employed for other purposes—to allay irritation of the system, and of the Pelvic viscera—and through this channel often with great advantage.

The enemata used for this purpose, are of an anodyne character—Preparation—Employed in irritable conditions of

the bladder or its neck—in the painful and spasmodic diseases of the Uterus—in the tenesmus of Dysentery.

In irritable conditions of the Stomach.

Enemata employed as vermifuges, when the worms are lodged in the lower intestines.

Enemata of Tobacco in Strangulated Hernia.

In Uterine and Intestinal Hæmorrhage, astringent glysters, and particularly iced water, are sometimes of powerful use, in checking these alarming accidents.

A solution of Assafoetida, or other anti-spasmodics, are often resorted to in Hysteria, and other complaints for which this class of remedies is employed.

Nutritive enemata are sometimes had recourse to, when from obstructions in the Œsophagus, nourishment cannot be conveyed into the stomach.

In cases of sudden collapse in Fevers, or other cases, where powerful remedies are required, and the powers of deglutition fail, there is no part to which stimulants may be more effectually applied, than to the rectum. They may be prepared with turpentine, or brandy and water, equal parts, with the greatest advantage.

SUPPOSITORIES.

USEFUL in relieving costiveness in infants, and in adults—They may be prepared with a piece of paper rolled up and oiled, or of hard soap cut into a cylindrical shape, and introduced into the rectum.

Or they may be formed of opium, or a pill of opium, for the purpose of acting upon the diseases of the rectum, or of the neighboring organs—Will be employed by patients to whom the use of enemata is disagreeable, or excites pain.

DIVISION 3.

Embraces those means by which we destroy or counteract morbid substances lodged in the Alimentary Canal.

ANTHELMINTICS.

It is well known to physicians, that in the human body there are found occasionally different species of worms. I shall treat of them as they differ in their habits, character and structure.

They are divided into two general divisions—the round and flat worms.

Under the first, are included—

1. The *Ascaris Lumbricoides*—the long round worm.
2. *Ascaris Vermicularis*—the maw or thread worm.
3. *Trichuris Vulgaris*—the long thread worm.

The *Ascaris Lumbricoides*, are of a round form, in length ten to twelve inches, and in circumference equal to a goose quill.

They infest the small intestines, but more frequently the course of the jejunum and ilium. Sometimes they are known to ascend through the duodenum into the stomach, and they have been seen to creep out of the mouth and nostrils. It is not often they are found in the large intestines, and then only after the exhibition of vermifuges. They are sometimes found in considerable numbers.

The sexes of the *Lumbrici* are distinct, and they are oviparous, the ovula being discovered in the mucous surrounding them in the intestines.

All the intestinal worms are oviparous, and they produce a considerable number of eggs. If all these eggs came to maturity, the diseases from this source would be exceedingly numerous, as well as dangerous. Several occurrences take place calculated to prevent their development. In short, it has been remarked by Rosin, that it is difficult for these worms to be abundantly produced.

This arises from the continued action of the intestinal canal, by which the eggs are carried downwards and expelled with the excretions. In addition, the different gases, with the substances found in the intestinal canal, suffice frequently to prevent their development, or to effect their destruction.

The uterus in this species of worm is very peculiar. It branches out into two large crura, which for the space of one or two inches are continued of an uniform character. They then suddenly become diminished in size, and appear like opaque threads lying on, and embracing in a convoluted manner the intestinal tube in the middle. This convoluted apparatus is composed of very fine transparent membranes, which is distended with innumerable eggs.

It is these opaque threads which are visible through the transparent coverings of the worm, and which, in common language, are considered as so many young worms.

2. *Ascaris Vermicularis*, *Ascarides*, maw, or thread worm, are on the contrary very small, being in thickness of the size of a piece of thread, and when full grown about half an inch in length.

They are most commonly situated in the rectum, and when there, frequently pass out per anum.

They are also met with in the cæcum and colon, and have

been found in the stomach, whence they have been called maw worm.

In the rectum of children or adults, they are generally in considerable numbers, but when in other parts their numbers are less considerable.

When discharged, they are extremely vivacious, and it is probably from this circumstance that the term *Ascarides* has been employed, from the Greek word *Askarizein*—to leap. The male and female are here also distinct, and not as generally considered hermaphrodite.

3. *Trichuris Vulgaris*, or *Trichocephalus dispar*, or long thread worm.

This worm is of rare occurrence, and it is only within the last half century that any notice has been taken of it, or any accurate description drawn. Its body, when full grown, equals in breadth the sixteenth of an inch, and in length nearly two inches. From the head proceeds a kind of proboscis, which the worm protrudes or withdraws at pleasure.

Description of the worm.

These worms have been found in the intestinum rectum, in the inferior part of the ilium, also in the jejunum, mixed with their contents.

Of the Flat worm, there is

1. The *Bothriocephalus Latus*—the Broad Tape worm.

It consists of a head, a chain of articulations more or less long, and a small round tail.

The head varies in size and shape from the *Tænia Solium*.

The articulations in this species are broader than they are long.

It is found in the small intestines of the inhabitants of Poland, Russia, Switzerland, and some parts of France, but it is not so generally met with as the *Tænia Solium*. It rarely exceeds eighteen or twenty feet in length, although they have been found longer.

Their color is generally a dusky white.

Another distinction of this worm is, that it seldom parts with its joints spontaneously.

Three, four, and even more of these worms have been found in the same person, but they seem to be peculiar to the inhabitants of the countries just mentioned, and where they prevail the *Tænia Solium* is not to be found, at least in the same subject.

2. *Tænia Solium*—Common Tape worm, also called the solitary worm.

From this circumstance a conclusion has been drawn, which seems to be established, that the smaller the worm, the more

numerous they are found to be, and the larger, the less numerous, hence the above term.

This animal consists of a head placed at the smallest extremity, and a chain of articulations more or less broad or long, which gradually enlarge as they advance, and at length terminate in a tail formed by a rounded joint. Each of these joints contain their proper viscera, and they are very easily separated from each other while the animal is alive.

Each joint when detached has the power of retaining for a considerable time its living principle, and is called from its resemblance to the seed of the gourd, *Vermis Cucurbitinus*. The separated joints do not appear capable of retaining their situation for any length of time, but are soon forced down the intestinal tube, and at length creep out, or are expelled per anum.

It has been conceived that these *Vermes Cucurbitinæ* have the power of forming fresh joints, but this opinion is not probable—the head alone having this property. Certain it is, that when the whole is voided except the head, in a short time after fresh joints are formed, and the patient is as much troubled with the worm as before.

The *Tænia* are always found in the jejunum and ilium, occupying their whole length.

The small intestines would seem to be the natural residence of this worm and the *Lunbricus Intestinalis*. Should their residence be made uncomfortable, they are readily removed from the system, either by vomiting, when they creep into the stomach, or with the discharges of the bowels, when they pass the valve of the cœcum.

The origin of worms is still buried in much obscurity. All that we know certainly, is, that whenever a nidus is formed favorable to their production and growth, there we see them generated and supported.

There are many circumstances predisposing to their production—Climate—more abundant in moist and cold, and in moist and hot countries. Examples—Season also predisposes more common in summer and in the autumn.

Diet predisposes—common in countries where fruit and pulse, or beans, are much eaten.

Particular states of the alimentary canal favor their production.

They occur in all habits—the feeble and the robust—in children and adults—Found chiefly in children, with weak digestive organs and feeble constitutions, a state of body favoring the production of much mucous.

Are worms a primary or accessory cause of disease? They are both. They become a primary cause when their number

is increased to such a degree, as to disturb the regular operations of the system, producing such a degree of irritation that the natural sympathies are awakened, or probably from a misplaced situation of the worm itself. Under these circumstances the diseases will be found as numerous and diversified as are the sympathies of the intestinal canal with the various parts of the body.

A train of nervous and convulsive diseases are excited by this cause—also dysentery, remitting fever, chronic and spasmodic cough, cynanche trachealis.

Thus is exhibited a striking instance of the influence of one exciting cause in bringing into action a variety of diseases according to the predisposition of the individual. This, you observe, varies in different persons, and hence such a diversity in their diseases.

If worms are capable of producing the disturbances in the system I have mentioned, they are capable of producing a Fever, several cases of which I have seen in practice. I would caution my hearers, that these cases are of less frequent occurrence than is commonly supposed, and that great mischief is sometimes done by treating the disorders of children as worm cases, which are really not so. Popular prejudice is too apt to attribute to the existence of worms the diseases of children.

Dr. Hunter, we are told, dissected great numbers of children, who had been supposed to die of worm fever, and whose complaints were of course treated as proceeding from worms, in whom, however, there appeared on dissection to be not only no worms, but evident proofs of the disorders being of a different character.

Worms are capable of producing a fever I have already stated, and as it is not of very frequent occurrence, its symptoms may be mentioned in this place.

The worm fever of children described.

Symptoms by which the presence of *Lumbrici* may be discovered. These may all be referred, in a greater or less degree, to intestinal irritation—and they are pains in the abdomen, itching in the nose, vomiting, looseness of the bowels, intermitting pulse, epileptic convulsions, &c.

Diseases produced from a misplaced situation of the worm. Examples—Cynanche Trachealis, or Croup, Spasmodic Cough, even sudden death.

Besides the intestines, worms are found in other parts of the body—In the integuments—the bronchial glands—the kidneys—the fat surrounding the ovaries—the cellular tissue—in the muscles—the brain—the uterus.

PARTICULAR ANTHELMINTICS.

THE articles of the class have been differently arranged by different writers. By some, as their action was chemical, mechanical, or of a cathartic character.

I shall arrange them according to the worm they are best calculated to remove, beginning with the articles adapted to the expulsion of the *Ascaris Lumbricoides*.

Family *Gentianeae*—*Spigelia Marylandica*—*Indian Pink*—Pink root.

Description of the plant.

Roots fibrous and perennial.

Stem herbaceous, six to twenty inches high.

Leaves sessile, ovate, lanceolate, acute.

Flowers, a simple secund raceme, yellow within, crimson without.

Every part of the plant is active—the root more so than the leaves.

It has long been celebrated for its Anthelmintic property, and was first recommended in the Edinburgh Physical and Literary Essays, by the late Dr. Garden, of this city.

It well sustains its reputation.

It operates by virtue of a narcotic quality, in consequence of which it exerts a poisonous and debilitating influence on the worm—so that upon the administration of cathartic medicines, they are readily removed from the system.

When given in large doses, it exerts a deleterious influence upon the human system, and this is exerted upon the brain and nervous system.

Never known these effects produced to an alarming degree, nor when exerted, are they difficult of removal.

Administration—In powder combined with calomel, or other cathartic, and thus combined its narcotic effects are seldom observed.

Dose for a child, v. to x. grs.

For an adult, ʒ ss. to ʒ i.

In infusion, it is equally efficacious, and more readily taken—Preparation of the infusion for children :

℞. Root of Spigelia, ʒ ii.

Boiling water, 1 pint and a gill.

Simmer until reduced to a pint—Sweeten with sugar or treacle, and drink in divided doses in twenty-four hours.

To be followed by a cathartic of castor oil.

In the form of syrup, prepared by adding to a strong infusion sugar or treacle, and reducing to a proper consistence.

Spigelia combined with the leaves of Senna and Savin, often with advantage.

Besides the anthelmintic property, it is adapted to the Febrile diseases of children, unaccompanied with worms—Exercises an excellent febrifuge operation, and affords much satisfaction.

Family *Meliaceæ*—*Melia Azedarach*—*Pride of India*—Poison berry tree.

The tree a native of the Island of Japan, but has been naturalized in this country.

It is possessed of strong anthelmintic properties—has been spoken of in high terms by different practitioners, and is much employed by the planters of our State.

The root is the part employed, and it is best administered in the form of decoction.

Manner of preparing—The outer covering of the root is scraped off, and about $\frac{3}{4}$ iv. of the bark is boiled in a quart of water, until it acquires the color of strong coffee, or until it is reduced to a pint. The dose is $\frac{3}{4}$ ss. to $\frac{3}{4}$ i., every two or three hours, until it operates, or it may be given in the quantity of a tea-cupful for several evenings, and a cathartic then exhibited.

The pulp which invests the stone of the ripe berries also useful, and they may be taken in the quantity of a gill during the day, rejecting the kernels—Cases of its efficacy related.

All parts of the tree vermifuge, and it is noted as being clean, or remarkably free from insects.

This article, like the preceding, is also possessed of febrifuge properties.

Family *Chenopodeæ*—*Chenopodium Anthelminticum*—Jerusalem Oak.

Description of the plant.

Root perennial.

Stem herbaceous, erect, furrowed, four to six feet high.

Leaves alternate, nearly sessile, glabrous, strongly veined.

Flowers in spikes, which towards the summit of the branches are densely crowded.

This plant a native of South America, but has become naturalized in this country.

Useful anthelmintic, all parts of the plant being active, the seeds in the highest degree.

It is exhibited in the form of expressed juice of the plant, or the seeds powdered, and given enveloped in mucilage, or the oil separated from the seeds.

Administered in any of these forms, has been useful after

other articles have failed—and after being employed for several days, to be suspended, and a cathartic exhibited.

Dose of the expressed juice, a table-spoonful.

Of the powdered seeds a tea-spoonful.

Of the oil, v. to x. and xx., m.

The objections to the oil, are its unpleasant taste and smell—if these could be corrected, would be introduced into very general practice.

Formula for the administration of the oil :

R. Oil of Worm-Seed, $\frac{3}{4}$ iss.

Castor, or Olive Oil, $\frac{3}{4}$ ii.

Honey $\frac{3}{4}$ ii.

Dose—a tea-spoonful for a child one or two years old, night and morning, gradually increased to three or four.

Family *Leguminosæ*—*Geoffræa Inermis*—Cabbage tree bark.

This tree, of which the bark is used as a verminifuge, is a native of Jamaica, and the other West India Islands. It is spoken of by the physicians of those islands as an anthelmintic of great power and efficacy, but it is little employed in this country.

Family *Leguminosæ*—*Dolichos Pruriens*—Cowhage.

A climbing plant growing in the West Indies. It produces pods thickly beset on the outside with stiff hairs, which, when applied to the skin, occasion a most intolerable itching. It has been employed in the treatment of worms, the part used being the hairy spiculæ obtained by scraping them from the pods, and mixing with syrup.

The operation is mechanical on the worm, and they inflict little injury to the mucous membrane.

They have been spoken of very favorably by the practitioners of the West Indies, but seldom resorted to in this country.

But though there are sufficient proofs of its efficacy, doubts have been entertained of its safety. These objections entirely theoretical.

That their operation is mechanical, is proved from this circumstance, that they have been given in tincture and decoction to worm patients, without any sensible advantage.

The dose of the Cowhage mixed with syrup, to the consistency of an electuary, is a tea-spoonful to a child, and a table-spoonful for an adult, repeated in the morning and evening, for several successive days, followed by a purgative dose. This remedy, though interesting from its character, seldom resorted to in this country.

Family *Laurineæ*—*Camphor*.

Among the remedies for *Lumbricoides*, this article has been held in much estimation—Spoken of very favorably by Professor Brera, and the Italian physicians. It is administered in the form of mixture, as follows :

R. Camphor, \mathfrak{z} ss. to \mathfrak{z} i.
Mucilage Gum Arab., \mathfrak{z} viii.

Dose— \mathfrak{z} ss.. frequently repeated. The advantages of camphor, that it not only removes worms, but prevents the development of the ova.

Cathartics have been employed for the expulsion of worms, and not being very tenacious of life, are easily destroyed and evacuated by their use. Those employed are Calomel, Jalap, Hellebore, Scammony, Aloes, Chloride of Sodium, or Common Salt.

Proto-Chloride of Mercury—*Calomel* is administered in a large dose at bed time, and removed from the system the next morning, with castor oil, or other cathartic—or repeated at short intervals, in order to remove such worms and ova, as have been screened from the preceding dose, by the folds of the intestines, or by mucous.

Combined also with Jalap—a common ingredient in all the nostrums advertised for the cure of worms, and a useful auxiliary to other vermifuges.

Chloride of Sodium, or Common Salt. The use of this article is very ancient and common in some countries. The value of salt, as an anthelmintic, may be inferred from the practice in some countries, of compelling criminals condemned to death, to live upon a diet without salt—Multitudes of worms being thus produced, from which death was ultimately the consequence.

In his own practice, Dr. Rush says, that he has administered many pounds of salt, colored with cochineal, with great success in destroying worms.

The formula is as follows :

R. Chloride of Sodium, \mathfrak{z} ii.
Cochineal, \mathfrak{z} ii.—Mix for a powder.

The dose \mathfrak{z} ss. to \mathfrak{z} i., given in the morning on an empty stomach.

Family *Pinaceæ*—*Cedar Apple*—An excrescence from the *Juniperus Virginiana*, or Red Cedar, produced by the puncture of an insect of the bark, or young branches—History of its discovery.

The *modus operandi* seems to be by virtue of the bitter, and probably Terebinthinate principle which it contains, proving a poison to the worms, and also by its tonic powers, overcoming that condition of the alimentary canal upon which their generation is supposed to depend.

Forms of administration—In powder, decoction, and in its green state, as plucked from the tree.

Dose of powder, grs. x. to xx., three times a day, and this pursued for a week.

In decoction, a tea-cupful several times a day.

As plucked from the tree—an apple for every year of the person's age, and this continued for nine mornings, in succession, fasting.

Family *Asteraceæ*—*Artemisia Santonica*—The Worm-seed of Europe.

It is the product of a plant growing in Persia, Asia Minor, and other Eastern countries. The seeds, but more properly the small globular, unexpanded flowers of the plant, mixed with their broken peduncles, have been much celebrated as a vermifuge.

They are given in powder and infusion.

The dose in substance is x. to xxx. grs., repeated morning and evening, and followed by a cathartic. They are much employed, particularly by the German population of this country.

Completing the consideration of the remedies for the long round worm, we will proceed to those of another species of this class, viz: the *Ascaris Vermicularis*, or *Ascarides*.

Their size is about half an inch in length, and their seat usually the rectum.

Symptoms of their presence—An uneasiness of the part, and an intolerable itching in the anus, which usually comes on in the evening, and prevents sleep for several hours.

This is attended with swelling in the rectum, internally and externally, with tenesmus and mucous dejections. They are found in the bed-clothes, or discharged with the alvine evacuations.

The general health of the patient is not much impaired by their presence; and this species, though among the most difficult of cure, is the least dangerous of all.

They are difficult of cure, in consequence of their tenacity of life, and by burying themselves in the mucous of the first passages, they resist the action of medicines. It is this which preserves them unhurt, though surrounded with many other substances, which would be fatal. Whatever will lessen the

quantity of this mucous, will not fail to relieve the patient—Purgative medicines employed for the purpose.

Those are the best which operate with sufficient activity, without enfeebling the patient to such a degree, but that a repetition could be borne.

Mineral waters containing much saline matter of this sort—Jalap mixed with sugar—Cinnabar with Rhubarb, of each zss . is useful, as it never fails to bring away mucous as transparent as the white of an egg, and in this many *Ascarides* will be found.

Calomel, also, with much confidence of success—Aloes, and its preparations, as its action is chiefly on the rectum.

The Compound Tincture of Aloes is one of the best for this purpose, the dose being z ii . to z ss ., night and morning, in a little water—or the *Hiera Picra*, z i ., dissolved in a pint of spirits—the dose z ii . to z ss .

Enemata or *Glysters*, also useful, and even necessary, from the tenacity of life which these worms exhibit, and from their being seated far from the mouth, medicines have little effect upon them, further than as they evacuate the contents of the rectum in common with the other viscera.

The enemata most approved, are Aloes z i . to z ii . dissolved in a pint of new milk—a weak infusion of Tobacco—a solution of Assafoetida—Lime water—Olive oil—Camphor.

This last, dissolved in Olive oil, will be found very beneficial in allaying the violent itching, and other painful symptoms of the anus. It gives immediate ease, and stays all night—Discharged in the morning, and with it many dead worms.

Solutions of salt—tepid milk well salted—Spirits Turpentine, enveloped in mucilage, have been employed.

With these, the rectum should be filled, but not distended, otherwise it would be expelled.

The operation should be repeated for a few successive days, when it seldom fails to remove, for a time, the *Ascarides*, and the symptoms they produce—Proper also to administer a cathartic.

A case related, detailing the symptoms connected with the *Ascarides*, and the treatment pursued.

The Third, species of round worm—The *Trichuris Vulgaris* or long thread worm.

This of rare occurrence, and as there is no peculiarity of symptoms attending its presence, the same treatment may be adopted, as for the *Lumbricus Intestinalis*.

Of the Flat worms—

Tænia or *Tape Worm*—One of the most difficult to be re-

moved from the body. The reason of its being so difficult to expel is, that though portions are apt to break off and be discharged, it is endowed with a power of reproduction, so that the patient is little or nothing better.

Of the anatomy of the *Tænia* little is known.

Symptoms of the presence of this worm, similar to the foregoing—the most characteristic are, pain in the abdomen, weight in the side, pickings or bitings in the region of the stomach, with the evacuation per anum of small substances resembling the seeds of the gourd—or *Vermes Cucurbitini*—Remedies.

Family *Filices*—*Polypodium Filix Mas*—Male fern.

Natural History—Native of Europe—The root the part used.

Properties—mucilaginous and sweet, afterwards astringent and bitter.

The root is large, firm, and covered with thick brown scales, placed in an imbricate order, and furnished with many long tough fibres.

Very ancient remedy, and had fallen into neglect until the latter part of the last century—revived by Madame Nouffer—Her remedy being the root of this plant, gathered in the fall, and reduced to a very fine powder.

Dose— $\frac{3}{4}$ iii. of the powdered root, mixed with $\frac{3}{4}$ iv. to $\frac{3}{4}$ vi. of water, taken in the morning—For children less.

If nausea is produced by taking the medicine, endeavor to relieve it—if rejected, it must be repeated as soon as the sickness is gone off—To be followed by a cathartic of a drastic character. The efficacy of this practice confirmed by others.

The root may be given in a form of a decoction—used also as an extract—Preparation.

Dose of extract—xviii. to xx. grains given at bed-time, and the same quantity in the morning, fasting—so that on the administration of a cathartic, the parasite has been discharged, often in the form of a ball.

Family *Coniferæ*—Oil, or *Spirits of Turpentine*.

One of the best remedies in the treatment of this, and other intestinal worms—The earliest mention of it.

Given in large doses, from $\frac{3}{4}$ ss. to $\frac{3}{4}$ i. and $\frac{3}{4}$ ii. and its exhibition is usually followed in a few hours by a considerable cathartic operation, and a discharge of *Tænia*.

The principle upon which its virtues depend, does not seem to be distinguished by the true cathartic character. The medicine has the power of resisting absolute decomposi

tion, by the assimilating operations of the organs of digestion, passes along the intestines in a great measure unchanged, and may be observed floating upon the surface of an evacuation—It comes in contact with the worm, and by a specific property deprives it of life.

In large doses it is less apt to disturb the bladder than in small. The constitutional symptoms produced by its use, are—giddiness to a great degree, which subsides with a cathartic operation.

This medicine affords relief to the painful feelings which were believed to originate in the presence of the worm. Cases might be cited of the beneficial effects which have been exhibited by the Oil of Turpentine.

Carbonate of Iron—Carbonate of the Protoxyd of Iron—*Rubigo Ferri*—Rust of Iron.

A safe and certain remedy—Has been given from ʒii. to ʒss. every morning, for three or four days, not only with safety, but success—Administered in treacle, or jelly, and taken as soon as mixed.

Cathartics of a drastic character—Gamboge given in doses of xx. grs. , morning and evening, mixed with a little sugar and water—repeated on the second or third day.

Other remedies—as bark of the root of Pomegranate, Tin, Arsenic, *Assafoetida*.

Family *Myrtaceae*—*Punica Granatum*—Pomegranate.

Has been recommended as a remedy for *Tænia*, and a number of cases stated as cured by its use.

Given in the form of powder and decoction. Dose of the former viii. to xx. grs. , two or three times a day—In decoction, prepared as follows :

Bark of the root of Pomegranate, ʒii.

Water, 1 pint and a half—boil to 1 pint.

Dose— ʒii. every half hour until the worm is expelled.

If of greater strength, it excites nausea and griping—affects the nervous system—producing vertigo, tremblings, the sensation of intoxication, &c.

In the treatment of worms, we must not confine our attention to the mere expulsion of the worm, but endeavor to give tone to the stomach and bowels by the use of Tonics, so as to prevent their reproduction.

DIVISION 4.
 ANTACIDS.

DIVISION 5.

Medicines which promote particular Secretions.

(a.) Of the skin.

DIAPHORETICS.

SHALL premise my remarks upon Diaphoretics, by a short account of the nature and importance of perspiration—It may be Insensible and Sensible—The former may be demonstrated by holding a highly polished metallic surface to the skin, when a watery vapor collects upon it and clouds it. When increased, it becomes sensible, and is denominated sweat. It is the same kind of fluid as the insensible perspiration—very small particles are observed on the skin, and they unite in larger drops. The causes—The quantity—Not easily ascertained, but may be supposed to be very considerable, when we consider the extent of the exhaling surface, and the rapidity of its reproduction. Sanctorius's computation in the climate of Italy—Less in other climates—Dr. Lining's calculation. The ordinary quantity in twenty-four hours, in one of good health, is iii., iv., or v. pounds.

The quantity determined by enclosing the body in a silk bag, rendered impermeable to moisture, by being varnished with Caoutchouc, and having only one opening for the breathing, the sides of which were carried round the mouth.

The nature of the secretion—in a great measure aqueous, holding in solution several salts, the excrementitious matter of animal substances, and sometimes acids. It possesses sensible properties.

Definition of Diaphoretics—divided by some writers into Diaphoretics and Sudorifics; but, as in the medicines arranged by authors under these titles, we can find no difference, but in the degree of activity, or what arises from the manner of administration, we may comprehend the whole under the title of Diaphoretics.

The importance of this secretion may be judged of, from the uneasy feelings produced by its suppression, and from

the number of diseases which originate in, or are aggravated by an interruption of the free discharge.

The action of Diaphoretics may be arranged under three heads.

1st. Those which operate by exciting the action of the heart and arteries.

2nd. Those which operate by producing a relaxation of the extreme vessels.

3rd. Those which are local in their operation, or which are applied to the surface of the body.

Under the first Division is included all the stimulating Diaphoretics—the blood by their operation being sent more forcibly into the minute vessels, and the secretory process thereby promoted. They produce their good effects in disease by *depletion* and by *revulsion*.

Every stimulant may, to a certain extent, produce these effects; but the stimulating Diaphoretics have the additional property of giving increased activity to the perspiratory vessels.

But if the Cutaneous vessels are already much excited, stimulating the arterial system will not accomplish our object—hence another class of remedies is, therefore, called into requisition, viz:—Such as produce relaxation—and this class operate by their action upon the stomach, producing nausea. The sensation of nausea is accompanied by feelings of depression, languor, indisposition to motion, with diminished vascular action. Diminished vascular action, by lessening the excitement of the skin, removes the constriction of the surface, allows perspiration—hence they are said to produce relaxation.

The medicines of this class are, the Antimonials, Saline Diaphoretics, small doses of Ipecacuanha, and cold water. The last operating by bringing down the excitement to the secreting point.

External remedies.—That these means should be efficacious, we should attend to the condition of the skin. If already excited, any additional excitement will postpone the desired result—will rather impede, than promote the sudorific process. Hence, in excited states of the skin, and system, a contrary class of remedies will be required, as cool air, cold drinks, the cold affusion. These would be the proper sudorifics. We owe much to Dr. Currie, and from him the practice of sponging, and the cold affusion, has been introduced in Fevers.

When there does not exist this excitement, *warmth* to the surface contributes to the free performance of the secretory process.

We have frequently noticed the advantages which arise from medicinal combination. They are not less conspicuous here. Examples—The union of the two classes, viz: a stimulant and relaxing Diaphoretic, more certain in their operation than either class singly. The articles entering into the composition of Dover's powder furnishing us an instance of this union. The primary effect of the opium, being to increase the action of the heart and arteries, while that of the Ipecacuanha, or Antimony, by its nauseating and relaxing operation, to diminish the action of the surface, or to produce relaxation. Hence, while the circulation is increased, the the skin is placed in a situation for the free discharge of perspiration. Another beneficial operation results—the sudorific being determined to the skin, prevents the unpleasant effects of opium on the brain, while the anodyne operation is obtained.

Other instances—as the combination of Tart. Antimony, with Gum Guaiacum, or Gum Guaiacum, Tart. Antimony and Opium—*vis unita fortior*.

Rules for the administration of Diaphoretics.

RULE I. During the exhibition of Diaphoretic medicines, it is most beneficial that the patient be confined to bed, and in some instances it is essentially necessary.

RULE II. The pulse and temperature of the skin are to be carefully watched. If the pulse be active, or the heat very great, Diaphoresis cannot be induced until they have been lowered by venæsection, or other depletives, which should not be admitted unless contra-indicated.

This rule is of the utmost importance, since Diaphoresis can never be advantageously excited, until the inflammatory action of the system has been reduced. The medicines of this class are, let it be understood, secondary remedies, and are resorted to when more vigorous means have failed, or cannot further be persisted in to subdue disease. When employed at a proper period, they are of the utmost benefit, since they not only act as evacuants, but by determining the fluids to the capillaries, they relieve the larger vessels. The strength of their impression will be adapted to the existing action, which they may change or subdue, while they will be wholly inefficient at an earlier period.

RULE III. While under the operation of a Diaphoretic, diluent drinks must be employed, unless the stomach be very irritable, or unless the antimonials have been exhibited, for in either case they may induce vomiting. The temperature of the drinks must depend upon that of the surface, for

if the skin is very hot, cold drinks are preferable; if the skin is cold, and the system feeble, warm drinks are to be preferred.

RULE IV. After the perspiration has subsided, the patient's linen should be changed, and he should be removed to a dry bed, or a dry part of the bed. The clothes under such circumstance becomes highly offensive, and in addition, tend much to check the perspiratory process.

RULE V. Guard against a sudden suppression of perspiration. This rule is of great importance, whence it is often necessary to watch patients while asleep. I have more than once known relapses to take place from this cause, which had very near proved fatal. One instance in particular, occurs to my mind, in which a female laboring under a pulmonary affection, had her symptoms suddenly aggravated by the bed clothes falling off when asleep, and while perspiring freely.

RULE VI. Avoid Cathartics during the administration of Diaphoretics, for they may suppress perspiration by a revulsive action, and will render necessary a frequent exposure to cold.

RULE VII. Avoid, during the use of Diaphoretics, those medicines which increase the secretion by the kidneys. These last directions are but little considered in ordinary practice, it being very common to hear of medicines being directed with a view to a cathartic and diaphoretic operation, or a diuretic and diaphoretic action. Physicians too often flatter themselves, that they can accomplish more than is compatible with the laws of the animal economy. The functions to which I have reference, are always opposed to each other—whatever will excite one will diminish the other.

RULE VIII. When long continued perspiration is requisite, as in chronic rheumatism, flannel should be substituted for linen, next the skin; without this, it will be impossible to keep up a uniform and constant perspiration.

DISEASES IN WHICH DIAPHORETICS ARE USEFUL.

In *Intermittent* and *Remittent* Fevers after proper depletion—These diseases terminate sometimes naturally by sudoresis, and these remedies seem indicated by nature to put a stop to the paroxysm.

The system should be prepared for them—its excitement reduced, and the alimentary canal evacuated.

When judiciously applied, they conduct the paroxysm to a close—they sometimes prevent its recurrence, and thus break the catenated motions on which the disease depends.

In *Continued Fevers*, they are equally necessary. It was the practice at one time, to give stimulating Diaphoretics, even in the most inflammatory fevers, confining the patient to a hot room, and preventing the ingress of fresh air. In this state, sometimes a profuse sweat breaks out, but it brings no relief, and does not diminish arterial action. In this, and all inflammatory diseases, venæsection, and other depleting remedies, should be used before we have recourse to this class of remedies, and even then, the milder ones are to be resorted to.

Diaphoretics have been much recommended in fevers, supposed to originate in contagion, as Small Pox, Measles, &c.

They are, doubtless, of service in these cases—no peculiar or specific action, and their use is to be governed only by the state of the system.

In the diseases of the *Alimentary Canal*—There exists a very intimate connection between the cutaneous capillaries, and those of the internal organs—and from the general effects of Diaphoretics, they must prove salutary in these cases. They are not only useful as depleting remedies, but act by revulsion, and thus determine from the seat of the disease. We observe, for example, Dysentery, Diarrhœa, and Inflammation of the Bowels, to ensue from the sudden suppression of perspiration; and, on the contrary, these diseases, from whatever cause they may arise, are almost always relieved by the Cutaneous secretion taking place.

In *Catarrhal* affections, they are of the utmost importance, and in all acute affections of the lungs. The relief is sensible and immediate. The cough, shortness of breathing, general uneasiness and distress, seem to be commensurate with the free discharge from the surface.

In *Rheumatism*—in acute cases preceded by venæsection, purgatives, and, in general, their efficacy is increased by being combined with opium. In chronic cases more essentially necessary. The treatment pursued, is directed to a renewal of the energies of the cutaneous vessels, by clothing in flannel, flannel bandages, stimulating diaphoretics, alterative medicines, bathing, general and local, the vapor bath. The warm and hot springs of Virginia, very useful in exciting the secretory functions of the skin, and in restoring health. Description of these springs.

Diaphoretics useful in *Dropsies*—Treatment of these complaints by the Indians by means of sweat ovens.

Captain Cook relates being cured of a dropsy in the South Sea Islands, by being buried up to the neck in warm sand.

STIMULATING DIAPHORETICS.

FAMILY *Papaveraceæ*—*Papaver Somniferum*—Poppy—Opium.

The Diaphoretic property of opium, intimately connected with the power of stimulating the action of the heart and arteries—Illustrations of its stimulating operation, from the custom of Eastern countries, and from its employment in the low stages of fever.

As a Diaphoretic, seldom used alone, but combined with Ipecacuanha, the Antimonial preparations, or the Sweet Spirits of Nitre. Formula—

R. Tincture of Opium, gtt.	xxv.
Antimonial Wine, gtt.	xxv.
Or Sweet Spirits of Nitre, gtt.	xl.
Water,	ʒi.

To be taken as a draught. Thus combined, it is useful in all cases where diaphoresis is required—as Catarrhal affections, or other cases.

In combination with Ipecacuanha, its best effects are exhibited, and applicable to many diseases. By this combination, its anodyne and diaphoretic operation are obtained, without any, or very little disturbance of the functions of the brain—Hence in all chronic diseases it is resorted to, with safety and advantage.

These enumerated—Its efficacy is improved by a union with the Sulphate of Potash. Its action may be purely mechanical, dividing and mixing the active particles more intimately, the success of the remedy depending much upon a minute division of the ingredients—constitutes the Dover's powder of the shops, in the following proportions:—Ipecacuanha, one part; Opium, one part; Sulphate of Potash, eight parts.

Can be employed in *Inflammatory diseases* after excitement has been reduced, without increasing the actions of the system. For though Opium may stimulate, the Ipecacuanha relaxes the surface, and free perspiration is induced. While these actions progress, pain and irritation are relieved.

The powder should be taken at bed time, the body should be kept covered, and no drinks allowed until perspiration commences.

Combined with Calomel—By this combination we obtain not only a diaphoretic operation, but a purgative and alterative. Combined with Calomel, the objections which have been made to the employment of Opium in Inflammatory diseases are obviated, at the same time, by operating in the several ways mentioned, an *anti-inflammatory* operation is exerted. By this union we obtain a diaphoretic, or a purga-

tive, or an alterative operation—We allay pain, and irritation, and thus disease is removed. The practice has been adopted very generally, and with all the beneficial effects which might be expected. Examples—

Administered in *Pleurisy*, after general bleeding, or other depletion, with great advantage. Administered as follows:

R. Opium, gr. 1.
Calomel, grs. vi. or viii.

Made into a pill, and repeated every four or six hours. This combination will be found highly composing and refreshing—promoting secretions, and removing all traces of disease. In the treatment of Inflammatory diseases, blood-letting and purgatives are not alone sufficient. These remedies, though useful, often induce symptoms also of a very distressing character, and they have received the general title of irritation, and this irritation may sink the patient unless allayed.

It is for the relief of this symptom, that opium is so commonly employed, and with particular good effects if combined.

Should any topical disease continue, the same combination will be found beneficial—Thus employed, the prejudices which have so long existed against the use of opium in inflammatory diseases have given way, and we find it employed in acute disease, and even in topical inflammation, after, or in company with venæsection.

Family *Laurineæ*—*Laurus Camphora*—Camphor Tree.

A forest tree, growing to a considerable size in the Islands of Borneo and Sumatra. The wood has a strong camphorated smell, and is much sought after as a material for chests, &c. The oldest trees are the best, and the camphor is found in perpendicular veins, near the centre of the tree, or concreted in the knots of the tree.

Manner of separating the camphor from the tree.

Purification of Camphor—The process consists in uniting thirty or fifty pts. of quicklime with the impure camphor, and submitting the mixture to a new sublimation.

Obtained also from many aromatic plants, as the roots of the Cinnamon tree, of the Cassia, of the Sassafras—Various aromatic oils, as Rosemary, Mint, Sage.

Camphor obtained from these sources not identical with that obtained from the *L. Camphora*, and from the *Dryobalanops Camphora*.

Qualities of Camphor.

White brittle substance.

Unctuous to the touch.

Tenacious between the teeth.

Not easily pulverized.

Odor, fragrant and penetrating.

Taste, pungent and bitter.

It is volatile, and dissipated at ordinary temperatures. It is dissolved by alcohol, æther, oils.

Properties—There is still some difference of opinion respecting the action of camphor on the system. By some it is regarded as a stimulant, while others maintain that it possesses considerable sedative powers. When taken into the mouth, it has an acrid, bitter taste, and when swallowed, it excites an uneasy sensation in the stomach, which may be imputed to the operation of its acrimony upon its upper orifice.

In its operation upon the system, this article is somewhat peculiar. In its sensible properties it is, doubtless, stimulating, but it appears to exert but little action upon the pulse. It soon produces a strong tendency to perspiration, without the pulse being sensibly affected in quickness—Employed in Febrile affections, with a dry, contracted skin, combined with other articles, even when the excitement would seem to forbid it, as in the following formula:

R. Nitrate of Potash, *ʒ* i.
 Camphor *ʒ* i. to $\frac{3}{4}$ ss.
 Tart. Antimony, gr. i.

Mix and divide into vii. or viii. powders, one of which may be given every second or third hour. Instead of Nitrate of Potash, Calomel may be added, and sometimes Opium.

Opium is conjoined with Camphor, with considerable effect—a new substance being formed, different from either. The combination prevents the disagreeable effects of opium, and determines gently to the skin. The union of these two articles in the following proportions, forms a powerful diaphoretic.

R. Camphor, grs. viii.
 Opium, gr. i.

Make into a powder, to be repeated according to circumstances.

In all Uterine affections requiring the use of opium, the above combination is very efficacious.

The German or Camphor practice, was employed with much success in the treatment of *Asiatic Cholera*—Employed in all the stages.

In the stage of *Asphyxia*, it is given in doses of xv. to xxx. m., every fifteen minutes in a table-spoonful of water.

Enemata of the same were employed.

The chest and abdomen were covered with flannel, wet with a solution of the same. The practice continued, until

free perspiration was induced, and the evacuations lessened. As the symptoms became less violent, the doses were diminished, or the intervals increased.

In the *Spasmodic* stage, the same treatment—also in the *Premonitory*. This practice spoken of in high terms by some of the physicians of New-York.

Effects of Camphor in a large dose—Recital of a case in which a very large dose was taken. The case interesting, as illustrating the action of camphor on the brain, being one of the sensorial stimuli—also exhibiting its strong determination to the skin, the perspiration flowing freely under its operation.

As camphor is of a volatile nature, and its effects transient, the dose should be repeated at short intervals.

It ought to be minutely divided before it is given—This is done by rubbing it first in a mortar, with any dry powder, as sugar, or nitrate of potash, or by dropping a few drops of rectified spirit upon the camphor.

Dose of Camphor as a Diaphoretic is from ii. to viii. grs.

Carbonate of Ammonia, or Mild Volatile Alkali.

Preparation—It is obtained in the form of a white crystalline mass, fibrous texture, efflorescent, odor pungent and peculiar.

Properties—Stimulating, and employed in the low stages of disease—Antacid, also Diaphoretic, though in a less degree than the preparations made from it. The Acetate of Ammonia being most remarkable for its diaphoretic operation.

It is prepared by pouring upon the Carbonate of Ammonia, as much acetous acid as may be sufficient to saturate the Ammonia, the carbonic acid gas escaping in the process. By this operation, we obtain Acetate of Ammonia, dissolved in the water of the acetous acid—To it, other diaphoretics are added, as Sweet Spirits of Nitre, or other articles.

It is administered in doses of $\frac{3}{4}$ ss. every hour or two.

It may be given during the paroxysm of Fever with less apprehension than most other diaphoretics of this class, and administered when much heat and dryness of the skin exist, with this great advantage, that it will be readily retained upon the stomach, when most others would be rejected.

This medicine may be made very readily, and extemporaneously, by adding the acetous acid to the carbonate in a phial, and by corking it, the carbonic acid is prevented from escaping—it unites with the water, and forms a much more pleasant mixture.

INDIGENOUS DIAPHORETICS.

FAMILY *Synantherea*—*Eupatorium Perfoliatum*—Thoroughwort, Boneset, Vegetable Antimony, &c.

Found in most parts of the United States.

Description of the plant.

Leaves connate, perfoliate, rough, downy.

Stem rises to the height of three and six feet.

Corolla, small, white.

Properties—Diaphoretic, tonic, emetic.

The leaves and flowers being the most active parts of the plant.

Qualities—Taste bitter, flavor peculiar.

Administration—In the form of infusion, taken warm, it acts as a diaphoretic.

Employed in the treatment of *Intermittent* and *Remittent Fevers*, and forms a very useful domestic prescription.

It was Dr. Rush's favorite diaphoretic in the *Yellow Fever*, of Philadelphia, in 1798—and such was its efficacy, as to cause it to be entitled the Vegetable Antimony.

Employed in *Typhoid Pneumonia* with advantage, as a sudorific and tonic, after proper evacuations.

In *Catarrhal* affections—In *Influenza*, *Break-bone Fever*, with such success as to be called "Boneset."

It is also possessed of tonic properties, and employed in the treatment of *Intermittent* and *Remittent Fevers*, as a substitute for Cinchona—Its Febrifuge powers overrated, and properly ranks with Chamomile and others of that class.

Useful in the convalescence from acute diseases, in debilitated conditions of the digestive organs, and in indigestion.

Forms of exhibition—As a tonic, given in the form of decoction and cold, in substance and in tincture.

Dose—Substance. xx. to xxx. grs.

Decoction, a tea-cupful.

Infusion, as much as the stomach will bear.

Family *Apocynace*—*Asclepias Decumbens*—Pleurisy Root, and Butterfly-weed.

Description of the plant.

Root tuberous, but more properly fusiform, perennial.

Leaves scattered, sessile, on short foot stalks, hairy, long, lanceolate.

Flowers, bright yellow color.

Stems numerous, ascending, and procumbent.

The root has been long celebrated for its diaphoretic and expectorant properties, and has been employed in *Fevers*,

Catarrhs, and pleuritic affections. It produces its effects without stimulating the system, but operates with mildness and efficacy. Dr. Parker, who employed it many years, considers it as possessing a specific quality of acting upon the organs of respiration, promoting suppressed expectoration, and relieving the breathing of pleuritic patients.

Dr. Chapman speaks of it as possessing very decided properties, and producing its effects without increasing the force of the circulation, or the heat of the body.

The popular opinion of its efficacy in pleurisy is not without foundation; relieving the oppression of the chest in recent catarrh, and promoting expectoration in protracted pneumonies. It can only be considered as an auxiliary, and may be resorted to, when the force of the disease has been reduced by more active means.

Forms of exhibition—

In infusion, a tea-cupful every two or three hours.

Powder, xx. to xxx. grs. several times a day.

Family *Aristolachice*—*Aristolochia Serpentina*—Virginia Snake Root.

Description of the plant.

Root perennial, fibrous, externally brown, internally white.

Stems round, slender, eight or ten inches high.

Leaves few, entire, ovate.

Flower at the base of the stem, lying on, or sometimes under the surface of the earth, of a purplish color.

Qualities—Odor, aromatic.

Taste bitterish, pungent, not easily concealed.

It yields its active properties to water and alcohol.

From the root, camphor in the form of fine white crystals can be obtained by distillation.

Properties—Stimulating diaphoretic—inasmuch that it is not usually resorted to in diseases, until the excitement of the system has been reduced by evacuating measures—Useful in allaying the irregular actions attendant on great febrile debility—Employed in the advanced stages of Fevers, and those attended with Typhoid symptoms—May be given alone, or in combination with wine whey, or other articles. It is also advantageously united with camphor, as follows:

℞. Infusion of *Serpentina*, ℥ vii.

Camphor, grs. x. to ℥ i.

Sweet Spirits of Nitre, ℥ ss.

White Sugar, ℥ ii. m.

Rub the camphor with the sugar until it is reduced to a fine powder—add the Spirits of Nitre, and then the infusion—strain.

Dose, ℥ ss. every two hours.

Employed also in the form of warm infusion in the secondary stages of Pleurisy, &c.

It is highly recommended by its agreeable taste and aromatic odor, insomuch that it will in general remain well upon the stomach.

The infusion is prepared as follows:

℞. Roots of *Serpentaria*, ʒ i. to ʒ ii.
Boiling water, 1 pint.

Dose ʒ ss. to ʒ i., as often as the case requires.

Of the same family—*Asarum Virginicum*—Heart Snake-Root.

Description of the plant.

Root fibrous and perennial.

Leaf solitary, heart shaped.

Flower nearly sessile—concealed in the ground—of a greenish color, to a purple.

Qualities—Odor aromatic, agreeable in a high degree.

Taste bitterish.

Properties—Stimulating diaphoretic, and similar to those of the preceding article—employed in the same disease, and may be advantageously substituted for it.

Same Family—*Asarum Canadense*—Wild Ginger.

Description of the plant.

Roots fibrous and perennial.

Leaves radical, petiolated, kidney shaped.

Flower Solitary.

Properties and applications, similar to the foregoing.

Family *Araliaceæ*—*Aralia Spinosa*—Prickly Ash.

Description of the plant.

Root perennial.

Stem straight, unbranching, naked and prickly below.

Leaves crowded on the summit of the stem, like the palm tree.

Qualities—Taste pungent and acrimonious, and there is experienced soon after swallowing, a heat and warmth in the stomach, with a glow upon the surface.

Properties—Stimulating, and pretty certain diaphoretic—Employed in Rheumatism in the form of saturated tincture of the root, and taken in as large dose as the stomach will bear, without exciting sickness, or vomiting.

Dose of the tincture, ʒ i. to ʒ ss., taken in a little water.

The root is used as an ingredient in diet drinks, and in the form of an infusion made strong, is an active emetic.

Vegetable Alteratives.

This term sprung up amongst the Humoral pathologists, who entertained the belief that the diseases of the human body arose from some disordered state of the fluids, and that all disorders were mere efforts of nature to expel the peccant humors. They considered the blood as the principal source of mischief, and they employed such medicines as might alter its state—hence they speak of purifying and sweetening the blood.

The term is still employed, and the diseases in which they are used are well understood.

The first of this class of remedies, is the

Family *Rutaceæ*—*Guaiacum Officinale*—Lignum Guaiacum, &c.

Description of the tree.

It is a native of the West Indies, and of South America, and grows to a considerable size. The wood is extremely ponderous and solid, very resinous, of a blackish yellow in the middle, taste heating and aromatic.

The wood is possessed of properties similar to the gum-resin, though less active.

It has been used as an ingredient in decoctions, which were celebrated in several diseases of the system, particularly in Syphilitic affections. It is not as efficacious as the Gum Resin, or Extract.

This *Extract* is obtained by wounding the bark of the above tree, from which it exudes in a considerable degree, and when a sufficient quantity has been discharged, and hardened by exposure to the sun, it is gathered and packed in small kegs for exportation.

Color of the extract, greenish brown.

It is easily pulverized—the powder which is first grey, becomes green on exposure to air and light. Of the precise nature of this substance, chemists are not agreed. It possesses properties allied to gums and resins—yet distinct from either.

Medical Properties of the Extract or Gum.—They are stimulant, diaphoretic, sometimes diuretic or purgative.

The effects are, to excite the action of the heart and arteries, and to promote the serous exhalation of the skin.

The Guaiacum was first employed by the natives of St. Domingo, as an antidote for the Lues Venerea.

The Spaniards soon acquired a knowledge of its virtues, and introduced it into Spain as early as the year 1517. It

has declined in importance, but is still useful in the *sequela* of the disease.

This article has been much celebrated in *Rheumatism*, particularly in the chronic forms of the disease.

Given in these cases after depleting remedies, when there is little fever, the pains frequently shifting their situation, with swellings of the joints, any of the preparations will be found useful.

It should be given in larger doses than it is usual to employ, and it is probably from these small doses, that the article has lost reputation.

The utility of medicinal combinations is manifested, in the application of this article to diseases.

The following formula will be found useful :

R. Powdered Gum Guaiac, ℥i.

Tartarised Antimony, gr. $\frac{1}{8}$.

Gum Opium, gr. $\frac{1}{2}$.

Mix and make into a powder.

To be repeated as often as the case requires.

To these articles, Calomel may be added. By this combination we obtain a new and active compound, not afforded by the simple substance.

The Tincture, combined with a small quantity of Laudanum, afforded much relief to the pains following *Dengue Fever*.

Has been recommended in *Gout*—can only be resorted to during the intervals of the paroxysms.

Guaiac has been much employed as an Emmenagogue—shall speak of its application under that head.

In *Cutaneous diseases* has been recommended, and from its known tendency to pass off by the pores of the skin, may be given with considerable success.

In the chronic stages, when the constitution is enfeebled and deteriorated, the general excitement produced by this article, and particularly of the cutaneous vessels, has a considerable tendency to remove the disease, and restore the enfeebled system.

Combined with other articles, its efficacy much improved—for formula—vide Sarsaparilla.

Mr. Pearson recommends the combination with Sulphur, Antimony, &c., in Herpes, Scabies, Porrigo, &c.

Preparations of Guaiac. Decoction of the wood—In its preparation, the wood should be in the state of shavings, or raspings. It is prepared according to the following formula:

R. Shavings of Guaiac Wood, ℥ ii.

Water,

℔ ii.—boil gently down

to

℔ iiss.

Toward the end, add liquorice root bruised, and sassafras

raspings—each \bar{z} i.—simmer to \bar{b} i., and strain—This quantity to be taken daily.

It is also given in the form of tincture and powder.

Dose—Tincture \bar{z} i. to \bar{z} ss., in milk or mucilage.

Ammoniated Tincture—the same.

Of the Powder, grs. x. to xxx.

Adulterations—Sometimes with the common Resin and the Machineal Gum.

Family *Thymeleæ*—*Daphne Mezereum*—Mezereon.

A shrub which grows in the Northern parts of Europe, and the high and woody parts of France and Spain. The bark of the root is chiefly employed.

To the taste it is acrid, with an aromatic odor. Applied to the skin, it readily excites a blister, and a considerable discharge of serum.

Properties—Stimulating diaphoretic, diuretic and purgative.

It agrees with Guaiac in its general operation and effects, and is employed in the same diseases, viz:—Syphilis and cutaneous affections.

Seldom used alone, but in combination, and the formation of compound decoctions.

Dose of the powders, grs. vi. to x.

Family *Smilacæ*—*Smilax Sarsaparilla*.

Grows in the West Indies, and in South America.

It is brought to us in long slender roots.

Color—brown externally, white within, covered with a thin coat, and having a wrinkled appearance.

Sensible qualities—odor little or none.

Taste mucilaginous and slightly bitter.

Properties—Diaphoretic, alterative, and sub-tonic.

Medical History—It was brought into Europe as late as the year 1530, with the character of being a specific for the Lues Venerea, in which disease it had been employed by the Indians with considerable success. It, however, lost credit, upon the discovery of the superior efficacy of mercury, and its virtues were overlooked—Again brought into notice by Dr. Wm. Hunter, and Sir George Baker.

Much difference of opinion exists among practitioners respecting the efficacy of this article. Some consider it a medicine of no activity, and others of much efficacy. The fact that 100,000 pounds are annually sold in Great Britain, and as many more in this country, would prove that its advocates are numerous.

In proceeding to speak of this article, I would observe that

the remarks made, will not have reference to the Sarsaparilla alone, but they must be understood as applying to it in various states of combination. By itself, it is highly useful, but the good effects derived from this and other similar articles, as the guaiacum, mezereon, sassafras, &c., are greatly increased by combination with each other. It is therefore of the combinations of this article, contributing as they do, to their increased activity, as well as to the greater convenience of administration, that the practical remarks I shall make will apply.

Sarsaparilla and its preparations, are admirably adapted to the secondary stages of Syphilis. The secondary forms of this disease, exhibit themselves in the most painful, loathsome, and mortifying affections of the human body.

Originating as these diseases do, not in single acts of folly, or the weakness to which human nature is subjected, but in a continuance of excesses, dissipation and disease, those who are subject to them, exhibit most frequently in constitution and appearance, a body impaired in its energies, and crippled in its faculties.

Mercury alone, in a constitution like the one I have described, cannot be endured. Its stimulating, or rather irritating operation, under these circumstances, aggravates all the symptoms—harrasses the patient, and superinduces the most distressing consequences. Sarsaparilla and the vegetable alteratives, combined with very minute quantities of the Perchloride of Mercury, in the manner I shall point out, forms a preparation freed from the objections just made, and a medicine well adapted to the disordered states of the constitution now under consideration.

It will be found excellent in restoring the appetite, strength and flesh of the patient.

It will complete the cure of ulcerations of the palate, throat and mucous membrane of the nose, skin, and other parts.

It will relieve nocturnal pains of the limbs, painful enlargements of the joints, of the bones, membranous nodes, cutaneous ulcerations, &c.

It will efface the blotches, foul spots, stains, &c., which in a constitution of this character so frequently occur from slight irritations, or which remain after the ulcerations have healed.

It will remove that morbid condition of the solids and fluids, which disposes every injury, however slight, to degenerate into a festering, painful, scabby ulcer.

It will, in short, so improve the digestive and assimilating operations of the system, that a more healthy blood, and more

renewed fibre, will be substituted for the defective conditions of the one and the other, and thus fully support the character bestowed on these medicines, of being essentially alterative. To accomplish these objects, this class of medicines must frequently be long and perseveringly employed. It cannot be supposed that these great, and important designs, can be effected with a few or lengthened repetitions of these substances. To their continued use, occasionally other alteratives should be added—as diet, change of climate, a long sea voyage, travelling.

Sarsaparilla and its combinations, will be found useful, not only in what is called syphilitic rheumatism, but the chronic forms of ordinary rheumatism.

It will be found useful in various affections of the skin, pustular, papillary, herpetic. Under the last, I would consider not only the affections properly so called, but that very troublesome disease *Tinea Capitis*, which, when long existing, refuses to yield to local remedies, and requires the aid of such as are constitutional.

The combinations of which I am speaking, will be found useful in the chronic ulcerations, of such frequent occurrence in the laboring and poorer classes of society. The tonic and alterative impressions excited, contribute to the rapid and successful operations of granulation and cicatrization.

From the remarks I have made upon these articles, you will be convinced that I repose no small confidence in their virtues—and with the opportunities I have had of prescribing them, in constitutions impaired and debilitated from diseases and excesses of various kinds, in habits vitiated from a scrofulous or venereal taint, or from the injudicious use of mercury; the relief which, in many instances, has been afforded, fully entitles them to these commendations. I might say more, but I shall probably be charged with extravagance. I trust I have said sufficient to direct your attention to their virtues and efficacy.

Preparations of this article—Sarsaparilla yields its virtues very readily to boiling water, but that the whole of its active and extractive matter be obtained, it is necessary that the boiling be continued a considerable time and in a close vessel. The preparations which are, or have been in vogue, are the Simple Decoction, Compound Decoction, Syrups and Extracts.

Simple decoction prepared by boiling zii . of the roots in four pints of water four hours, in a vessel lightly covered and placed near the fire; then taking out the roots, bruising them, returning them again into the liquor; macerate in a similar

manner for two hours more, and boil to two pints and a half—strain.

Dose—one pint daily.

The compound decoctions are prepared by combining with the Sarsaparilla other articles, as the shavings of the wood of Guaiac, bark of Sassafras, Liquorice root, bark of Mezercon root—water. This is the Lisbon diet drink, and for the proportions and manner of preparing, I refer you to the Dispensatories.

A preparation superior to the Lisbon diet drink, is the following :

R. Rad : Sarsaparilla.
China Briar Root.
Sulphuret of Antimony, each ʒviii.
Gum Guaiac, ʒiiss.
Water, xxiv. lbs.

These ingredients are to be simmered in a close vessel for twelve hours, the steam being prevented from escaping. After simmering the time prescribed, to be strained, bottled, and kept in a cool place. The Antimony is to be coarsely powdered, enclosed in a piece of linen rag, and suspended from the cover of the vessel.

Dose, as much as the stomach will bear, to be continued for weeks or months.

Calomel may also be suspended in a bag in a similar manner, and beneficial effects are produced by the same—a very small quantity being taken up by the fluid— ʒii. to ʒss. may thus be enclosed in a rag, or small bag, and suspended from the cover of the vessel.

These preparations, though valuable, will not be persisted in by the patient for any length of time. From the delicacy of the stomach, or the captiousness of the invalid, large and repeated draughts of these medicines will not be taken.

That the remedy may be persisted in, it becomes necessary to present it in a more agreeable form. This is done by increasing the quantities of the ingredients, continuing the decoction longer, forming a fluid extract, and combining sugar and treacle so as to form a syrup.

The first preparation introduced into general notice under this head, was that prepared by Swaim, and called Swaim's Panacea. There can be no doubt that it is a preparation of Sarsaparilla, with other of the vegetable alteratives, reduced to a concentrated state by boiling. When thus reduced, treacle or sugar is added, and a syrup formed. In this preparation, some advance has been made, and to the vegetable the mineral alteratives have been added. The mercurial preparation used, is the Perchloride of Mercury, or Corrosive

sublimate. This article may have been selected from its activity, the smallness of the quantity required, the difficulty of detection, and its seldom salivating.

The union of these articles has placed us in possession of a preparation, more active, more agreeable to the taste, and more convenient for administration,

I shall not recommend to you the use of this medicine for several reasons—because with a little industry you can be possessed of a preparation free from objections, and with the operation of which, in the diseases I have mentioned, you will be well pleased. It is as follows :

℞. Sarsaparilla,	℔ss.
Stylingia Sylv.,	ʒiv.
Shavings of Guaiac,	℔ss.
Sassafras, Root,	ʒiv.
Water,	1 gallon.

Boil for a sufficient length of time, to extract the virtues of the articles—water must, therefore, be added as it evaporates, and it may, finally, be reduced to two quarts. To this, sugar or molasses is added, and the whole reduced to the consistence of a syrup. To each pint of this syrup, add of the Perchloride of Mercury, previously dissolved in spirits, grs. ij.

The dose for an adult will be ʒ ss. to ʒ i., three or four times a day. For children less.

Further experience in the preparation of the Syrup, induces me to recommend that the Sassafras root, and the shavings of Guaiac, be added to the decoction, towards the close of the boiling ; and the Stylingia, or Queen's Delight, added in the form of a saturated tincture to the Syrup, in the proportion of a pint to the gallon.

The Syrup may be given with, or without the Perchloride, according to circumstances.

Other preparations of Sarsaparilla are simple fluid extract, and compound fluid extracts. By the agency of steam the active matter of this, and other articles, has been concentrated, in a very great degree, and very neat and useful preparations furnished.

Sarsaparilla Syrup.

An alkaline principle has been obtained from this root, to which the term Parillina, or Sarsaparilline, has been given.

The U. S. Pharmacopœia directs the syrup to be prepared with proof spirit, or diluted alcohol, which extracts all the active principles of the roots, and the tincture being evaporated, to a proper degree, is made into a syrup. By this means, the long continued boiling is avoided.

In selecting the roots, it will be right to choose such as are plump, not carious, nor too dusty in breaking, but rough, and split easily longitudinally.

SUBSTITUTES FOR SARSAPARILLA—INDIGENOUS ALTERATIVES.

FAMILY *Smilacæ*—*Smilax Herbacea*.

Description of the plant.

Root perennial.

Stem herbaceous, two to four feet high.

Leaves oval or ovate, five to seven nerved.

Flowers on the lower part of the stem.

Berry, spherical, black.

Family *Smilacæ*—*Smilax Pseudo*—*China*—China Briar
Root.

Description of the plant.

Root, tuberous and creeping.

Stem, climbing.

Leaves, cordate.

Berries, black.

Properties—The root cut into small pieces, is much employed in decoctions and diet drinks. It is possessed of some acrid properties, and on this account, it often acts as an emetic, when the decoction is too strong.

Family *Ulmaceæ*—*Ulmus Fulva*—Slippery Elm.

The inner bark of the tree and branches employed.

The taste is mucilaginous and not unpleasant.

Its effects are, to increase the insensible perspiration, to improve the appetite, and invigorate the general system.

It is administered in the form of simple or compound decoction, and has been employed advantageously, in the public institutions of London.

For its mucilaginous properties, it is employed in the form of tea, or drink, in the affections of the bowels and bladder.

The bark, when dried, is also used for dilating sinus's, and contractions of the urethra.

When reduced to powder, it is employed in the preparation of poultices to inflammatory tumors, or as a wash to irritable ulcers, and applied by means of a prepared lint, as a local application, frequently renewed.

Compound decoction prepared as follows :

R. To a decoction of Elm Bark, add

Sassafras Root,

Shavings of Guaiac Wood, each $\bar{\text{z}}\text{i}$.

Mezereon Root, $\bar{\text{z}}\text{iii}$.

Liquorice Root, $\bar{\text{z}}\text{i}$.

These are to be boiled together an hour, and strain.

The decoction properly prepared is of a clear brown color.

Family *Euphorbiaceae*—*Stylingia Sylvatica*, or *Queen's Delight*.

Description of the plant.

Root large, woody, perennial.

Stem herbaceous, two to three feet high, somewhat angled by the base of the leaves, with the whole plant glabrous, lactescent.

Leaves alternate, irregularly serrulate, somewhat coriaceous, shining on the upper surface, paler underneath.

Flowers in a terminal spike, the upper crowded as in an ament, sterile, with interposing cupulate glands.

Fertile florets, few at base.

Grows in dry sandy soils, and flowers in May and June.

The part employed is the root, which acquires a considerable size, and runs to a great depth in the earth. Its structure is not very fibrous, and it is easily broken in gathering. It grew in considerable quantities in the neighborhood of this city, but has been nearly exterminated by the frequent searches made for it. It is found in considerable abundance in this State, particularly in Edgefield, Barnwell, Newberry and Abbeville Districts. It is also found in Georgia and other parts of the Union.

Few vegetable productions, in their recent state, exhibit more power, concentrated in a small compass, or exercise an influence more energetic, upon the particular organs to which it is applied, and through them upon the system generally. So powerfully is this action exerted upon the capillary and secreting vessels, in changing their morbid states or conditions, and thereby disposing to a new and more healthy action, that in this respect it is nearly allied to mercury, exerting an influence little inferior, in many cases, and in others, greatly to be preferred.

Sensible properties—

If we open a drawer in which the recent root has been kept a short time, we are sensible of an odor, extremely strong and acrimonious, and rather of a disagreeable character.

The taste of this root is also pungent, and leaves on the

root of the tongue and fauces, an impression biting and irritating, exciting a flow of saliva.

The juice of the root, applied to the surface, and rubbed upon it, occasions smarting and irritation. If we remain in a close room where the root is being boiled, and the vapor passes into the room, a sense of sickness at the stomach is excited, with a disposition to discharge saliva, with headache, and other unpleasant symptoms. From this circumstance, we infer that the active matter is of a volatile nature, and it is proved by the roots losing much of their weight and activity by being long kept. It is estimated that the probable loss is 80-100 per cent.

From the above, we recognize that the plant will present a close alliance to the most active of the Euphorbiaceæ. In its irritating operation upon the surface, not much inferior to the oil of the *Croton Tiglium*; and in its emetic and cathartic operation, superior to the *Euphorbia Ipecacuhana*, and *E. Corollata*. From its alliance with these plants, its activity might be inferred, and this has been fully verified by experiment.

Effects of this article upon the system—

Its Emetic Operation.—This it possesses in a considerable degree, insomuch that it is usually resorted to for this purpose by the residents of the country. Given in the form of an infusion of the root, and taken liberally, it is quite energetic in its operation. A single transverse slice of the recent root, about the size of a sixpence, chewed and swallowed, is followed by considerable heat in the mouth and fauces, extending down the œsophagus, with burning in the stomach, nausea, and increased flow of saliva. The uneasiness continues, and becomes more distressing after a short time, and in persons who are susceptible to the operation of emetics, vomiting follows. It is, in short, of all vegetable substances, in this particular, with which we are acquainted, the most active in a small compass. The root must be in a recent state, as the virtues of the plant are sooner impaired by drying, than any other. To such an extent is this the case, that we have been disposed to consider its virtues of a volatile nature, as it undergoes considerable deterioration by keeping.

From its strongly stimulant operation upon the stomach, when taken in large doses, we might infer its beneficial influence in well regulated doses upon other portions of the system, and particularly in those diseases where a *stimulant and alterative operation* is required. Hence, in diseases of the *capillary* and *lymphatic* systems, it has been resorted to, and from its action upon these vessels, with much advantage. The intimate connection of these diseases with the condition

of the digestive organs, need not be enlarged upon in this age of pathological research. There is, in the constitutions in which these diseases occur, obviously a want of tone and energy in the solids, which incapacitates the person for proper exercise—a weakness of the muscular system, which leads to speedy exhaustion, and this impaired condition of the solids, is the result of bad digestion, by which the fluids of the body, and the blood more particularly, are deprived of those nutritive properties, which are essential to a healthy condition of the organs to which they give support. The chyle being imperfectly elaborated, the blood is thin in consistence, its globules deficient in quantity, and has few of those active ingredients, the saline properties particularly, which are necessary to the due order and integrity of every part. The out-posts, therefore, suffer most, or those parts which feel the vivifying influence of the heart's action in a less degree. To restore these parts, we must direct our attention more particularly to the sources of supply; the condition of the digestive organs must be attended to, and as we invigorate them, and diffuse their action over all parts of the system, and particularly to the most remote, will our efforts meet with corresponding success. In scrofula and other diseases of the lymphatic system, we must look to the condition of the digestive organs—the disease being properly termed strumous dyspepsia. The remedies, therefore, which in giving tone to these organs, seem to have an action upon remote parts, either in stimulating the languid capillaries to greater activity, or in exerting an alterative operation, are the remedies upon which our confidence is to be chiefly placed. Simple stimulants are insufficient to insure the attainment of these objects; other properties are to be added, and these we term alterative, without explaining their action. But as every article seems to exert its own peculiar impression upon the system, so does this differ from all others, and to this operation, *sui generis*, are we to attribute its beneficial effects in diseases of the lymphatic system.

Of the use of this article in Scrofula.—From what has been said of its local and general effects upon the system, its application to this disease might be inferred. Reasoning, however, upon the virtues of the article, did not direct the employment. Accidental causes, most probably, conspired; and to whose sagacity we owe the first patient, painful, and successful experiments, is undetermined. All of these were required in the use of a substance, which produces decided effects even in small doses. The painful trials were endured, and the result was much relief to the sufferers, and an enduring reputation to itself. Of its efficacy, there is not wanting

the testimony and support of many individuals of veracity. It has been employed where the glands of the neck were enlarged, where suppuration has taken place, and in ulcerations of the same, and found beneficial. The testimony of professional and unprofessional persons could be adduced on this subject, and would confirm the statement I have made ; but the daily progress of a case of this nature would afford little interest. In this form of disease, when from feeble health, the system becomes irritable and captious, and the digestive organs not less so—where perseverance in an article which is to produce an alterative operation upon the fluids, and even solids of the body is required, it becomes a desideratum to know how the article should best be administered ; for from failure in these particulars, it is precipitately abandoned.

It has been administered in substance, in pills, or a thin transverse slice of the root, chewed and swallowed. It has also been administered in the form of infusion, sweetened with sugar or syrup, and in the form of tincture. The former modes of administration are objectionable, in consequence of the article losing its virtue by keeping ; and the latter is difficult to enforce with young persons. The plan which has been found most efficacious to preserve the strength of the root, and most agreeable for administration is, to extract the juice of the recent root, by pounding the same, expressing, and straining—mixing in determinate proportions with the best treacle, bottling and preserving for use. The dose to be administered will be regulated by the effects.

It is in *chronic diseases* and *chronic inflammations*, that the efficacy of the Styllingia is best exhibited, and more particularly in the long train of consequences which follow syphilis. Its reputation in the secondary and tertiary forms, is well sustained, and of the many boasted nostrums for the cure of these cases, few will be found more deserving of a trial, either singly, or in a combined preparation.

In corroboration of the effects of this article, I will detail, by the consent of a friend, Dr. Thomas Y. Simons, a case of Syphilis in its advanced stages, in which it was usefully employed.

The patient was a little girl, who had an enlargement of the tibia, to such a degree, as to deprive her of all power of motion. Enlargements also existed in various other parts of the body, resembling nodes, viz: upon the olecranon process, upon the head, and one in particular upon the forehead, of the size of an egg. The bones of the nose were much affected, insomuch as to cause a considerable depression. The condition of this patient was in a high degree distressing:

Seated in a chair, with the limbs contracted and swollen, she bid fair to pass a miserable and protracted existence, a burthen to herself, and a source of anguish, distress, and trouble, to her parents. Various remedies, alterative and mercurial, had been tried by a physician long in attendance, with but little benefit. Dr. Simons being at length consulted, determined upon trial of the Styllingia. The patient was at first pretty freely evacuated, and the evacuants continued occasionally during the treatment. The Styllingia, in infusion, was employed as follows:

Take of the recent Styllingia root, ζiv .
Water, ℥i .

Simmer until one-third is dissipated.

This quantity was drunk during the twenty-four hours, in such doses as not to nauseate the stomach in any degree. The medicine was continued for months, and at the expiration of several, she was so much improved, as to be able to move about with the assistance of a stick, have the free use of her limbs, and the swellings, particularly that on the forehead, considerably reduced. The patient has every appearance at the present time, of being speedily restored to a considerable degree of health—though it is doubtful, considering the ravages her system has sustained, whether she will ever enjoy perfect health.

The Styllingia we rarely employ alone, being convinced, that a combination of medicines to a reasonable extent, particularly among that class termed alteratives, is much more beneficial. It is, therefore, commonly combined with the Sarsaparilla, and other articles, either to improve its efficacy, or to render the preparation more agreeable. Combinations of medicines of a similar, or dissimilar character, have always been considered productive of greater advantages than can be obtained by their simple administration, and hence we usually have recourse to their union, when it can be done profitably. The observation of Dr. Fordyce upon this subject, has always appeared particularly forcible and happy—"There is," he says, "something in the relative effects of medicines, similar to the harmony of color and sounds, and that the impulse requisite to the living powers, which cannot be produced by a single impression, may be effected by a concurrence or succession of impressions, in some degree allied to each other." Those in practice, who have paid attention to the subject, must have observed that greater benefits are afforded by a union of forces, than by employing any one singly. It not only improves the efficacy of the article we are administering, but, in many instances, gives rise to compounds of entirely new powers.

Acting under these impressions, as well as to obviate the unpleasant effects produced by this article in some cases upon the stomach, in exciting nausea, either from the dose being larger than could well be borne, or from the irritable condition of the patient's stomach, we have commonly administered, it combined with other articles, after the formula, already furnished, under the head of Sarsaparilla—which see.

The Styllingia, thus prepared and administered, will not be found unpleasant to the taste, to be well adapted to many of the forms of secondary Syphilis, and to most of the diseases detailed under the article Sarsaparilla.

With these articles is completed the consideration of the stimulating Diaphoretics.

Under the *Second Division*, we proceed to those Diaphoretics which produce *relaxation*, by diminishing action.

The first in importance, is the

Preparations of Antimony.—These have been very numerous, but are now reduced to a few.

Of the *Tartarised Antimony*—already referred to—Its effects are, to promote the excretions, and to quicken and stimulate the action of the absorbent vessels—It is also diaphoretic and expectorant.

These effects influenced by the dose, increasing it to render it a vigorous emetic and cathartic, and diminishing it, when the gentle, and more gradual operation of a diaphoretic and expectorant is to be secured.

The diaphoretic operation is connected with the production of nausea, by which a reduction of arterial action ensues, and relaxation of the skin takes place.

In addition, these preparations would appear to exert a direct and specific operation upon the skin.

To these properties must be added its Sedative and Febrifuge, the effects of which are exhibited in a great degree upon the circulation, so as to render it a valuable article, not only in Febrile diseases properly so called, but also in Inflammatory.

As a Febrifuge in the Fevers of our country, its value is well known and appreciated—Extolled by Dr. Rush, its efficacy much improved by combination, particularly with the Nitrate of Potash, as follows:

R. Nitrate of Potash, ʒi.
Tartarised Antimony, gr. i.

Mix and divide into six or eight powders—a powder to be taken every two or three hours.

The usual dose as a diaphoretic is the 1-6 of a grain.

Pulvis Antimonialis—*Antimonial Powder*—Preparation—
Properties the same as the preceding, and employed in similar cases.

We should be on our guard in employing it, as it is frequently an inert article.

Its inertness, owing to a Peroxide of Antimony being formed, instead of a Protoxyde—also to its containing a large portion of the Phosphate of Lime.

Has been given in doses of from grs. v. to zi., without any sensible effect. This article may be glanced over cursorily, as there are no effects derived from it, which cannot be obtained from the preceding. Tartarised Antimony may be substituted for it after the following formula:

R. Tartarised Antimony, grs. viii.
Powdered Gum Arabic.

Powdered Liquorice Root, each zi.—Mix.

Sixteen grains contain one grain of the Tartarised Antimony, so that ii. to iv. grs. will be the average dose for the fulfilment of those indications, which are generally expected from iv. to vi. grs. of the common antimonial powder.

The dose of antimonial powder is from iii. to v. grs.

The next preparations are, the

Kermes Mineral and Golden Sulphuret of Antimony.

The preparation of these articles already mentioned—Much employed by some physicians, particularly the French, for their diaphoretic operation, and employed in all those cases where this class is recommended—also in obstinate Catarrhal affections, after depletion, rubbed up with mucilage or simple syrup.

Ipecacuanha proves diaphoretic, by its action on the stomach producing nausea, with reduction of arterial action and relaxation of the surface—Rarely given alone, but combined as in Dover's powder—The value of this combination already mentioned.

Useful in the *Intestinal derangements* of children during dentition—given in small doses, and combined with prepared chalk. Formula—

R. Dover's Powder, gr. iv.
Prepared Chalk, grs. xii.

Mix and divide into six powders—a powder to be taken every three or six hours.

Ipecac. is given in small doses in affections of the mucous membrane of the Lungs, and in similar affections of the same membrane of the bowels, dysentery and diarrhoea—By the practitioners of India, it is employed in the malignant

diseases of that country with great advantage, but in large doses.

Dose as a diaphoretic, gr. ss. to ii. grs., every two hours.

Nitrate of Potash---Found native in the East Indies, and in union with earthy substances---also prepared artificially by making nitre beds.

Properties---

Taste sharp, bitterish, pungent, with a sense of coolness---Diaphoretic in its operation, but principally useful for its refrigerant, and somewhat sedative operation, in allaying the action of the arterial system, and diminishing heat and thirst.

It is combined with the Tartarised Antimony and Calomel, forming the nitrous powders, as follows:

R, Nitrate of Potash, ʒ iss.

Tart. Antimony, grs. i.

Calomel, grs. viii.

Mix and divide into viii. powders—a powder to be taken every two or three hours—The advantages of this combination.

This salt sometimes taken in large doses for Glauber Salt—the accident not unfrequently happens from a resemblance in the crystals.

The effects of a large dose described, and the treatment to be pursued.

Crystals of other articles, which may be mistaken for each other---For example, Sulphate of Magnesia for Sulphate of Zinc, and these for Oxalic Acid.

This last a corrosive poison, and when taken, the antidotes are Lime and Magnesia, with which is formed an insoluble Oxalate of Lime or Magnesia.

Carbonate of Soda.

Properties---

Saline and slightly alkaline taste---employed in the form of neutral mixture, by being saturated with Citric Acid or Vinegar. Preparation---

Take of Lime Juice or Vinegar, ʒii.

Carbonate of Soda, as much as may be sufficient to saturate it, previously dissolving it in a little water.

Sugar, ʒ ii.

Water, ʒ ii.

The dose ʒ ss. every hour or two---To it may be added the Sweet Spirits of Nitre, or Antimonial Wine.

This preparation is adapted to the Febrile affections of children, or grown persons of delicate habits.

Carbonate of Potash---

May be taken in the form of effervescing draught. Preparation—

R. Carbonate of Potash, ʒss. to ℥ii., dissolved in half a wine-glass of water.

Citric Acid, as much as is sufficient.

Upon being united, considerable effervescence takes place, and it is drunk during this state.

It is recommended in irritable states of the stomach—in checking vomiting—in exciting perspiration. To be repeated according to circumstances.

Soda Powders—

Substitute for Soda Water. Preparation---

Bi-Carbonate of Soda, grs. xxx., to be folded into one paper.

Tartaric Acid, grs. xxx., into one paper—Each dissolved in separate portions of water, to one of which sugar, or syrup, has been added.

Upon their union, effervescence takes place, and during this state it is drunk.

Citrated Kali.

A useful preparation—ʒi. dissolved in iv. oz. of water, produces a mixture, or saline draught, fully equal to that prepared from the fresh Lime Juice, or Vinegar, and Carbonate of Potash. It has the advantage also in being more uniform.

Acetate of Potash---

Citrate of Potash---

Chlorate of Potash---

UPON THE EXTERNAL MEANS OF EXCITING DIAPHORESIS.

THEY will be influenced by the condition of the surface. These conditions admit of considerable variations, and so are the means with which we operate.

The skin is sometimes in a very excited state, and the general system also. Perspiration is suspended by the constriction which exists—the excitement transcending the point of secretion—The proper remedies under these circumstances.

At other times, the vital powers are in a feeble condition—the skin is dry and cold—the functions are performed with extreme feebleness—it is without softness—it is contracted,

hard, and gives to the touch the feel of parchment---Applications of an opposite character are required.

I shall commence my observations with the consideration of the *Cold Bath*.

The practice of bathing seems to have been held in the highest estimation in very ancient times---even when little advance had been made in civilization, for its healthy operation on the system, and preserving the skin in a state favorable to the proper exercise of its functions.

It became a most luxurious indulgence---Splendid edifices erected for this purpose.

The effects of the cold bath---

Immersion in water at the temperature of 65° Fahrenheit, is followed by these changes. There is experienced a sudden sensation of cold, forming that shock to the whole system, which is one of the most important effects of the cold bath. This is succeeded by a sense of warmth, which increases rapidly to a certain extent, constituting what has been termed a glow upon the surface.

It is a reaction, which Dr. Brown considers as arising from an accumulation of excitability. When the body has been placed under these circumstances for a few minutes, there must be a considerable impression made upon the nervous, and sanguiferous, and absorbent systems, and this impression may be made subservient to the relief of many diseases.

One of the most important of its uses is in the hot stage of Fever.

Characteristics of Fever---

Increase of heat greatly above the natural standard.

Dry and unperspirable skin.

Pulse hurried and unsteady.

Wandering of the thoughts---delirium.

This deranged condition of the system is to be relieved, and it must be done by such means as will restore the secretions of the skin---hence the excitement of the system must be reduced.

This is done in several ways. By cool air, a free circulation of air, sponging with cold water, or vinegar and water, or plunging in cold water, or its affusion over the body---the last, if the directions of Dr. Currie are followed, no apprehensions need be entertained of any ill consequences being produced.

The most advantageous time for the use of the bath---

When the heat is steadily above what is natural.

When there is no sense of chilliness present.

When there is no general perspiration.

The consequences of a proper employment of the bath---

1. The reduction of the animal heat.
2. The reduction of the action of the heart and arteries.
3. The diminution of the cerebral and nervous excitement.
4. The production of profuse and general perspiration.

Following the general reduction of the excitement of the system—there is

1. Abatement of thirst.
2. The frequent and hurried pulse is lowered.
3. The restlessness is relieved.
4. The wandering of the mind is composed.
5. Easy and sound sleep succeeds.

Various instances to be found, in the records of medicine, of persons, who, under the delirium of fever, have thrown themselves into cold water.

These instances occurred at sea. They have been taken up relieved of their Fevers, and restored to their senses.

The explanation is very easy and natural.

The Febrile diseases in which the cold affusion has been employed, are—

Yellow Fever.

Bilious Remittent, or Country Fever.

Intermittents.

Simple Continued Fevers.

Manner of using the cold affusion—

When the excitement is renewed, and the same symptoms threaten a recurrence, though in a less degree, the same practice is to be repeated.

We have in this manner employed the affusion five or six times during a paroxysm, and we may add, that few Febrile diseases will withstand such treatment—they will yield to it.

Precautions in the use of the cold bath—

The cold bath an auxiliary to blood-letting and other depleting remedies, and employed when their use can no longer be persisted in advantageously.

Hence we would not commence our treatment with the cold bath, but when depletion in the ordinary way fails of relief, other aid must be brought to our assistance, and the aid thus furnished is sure and powerful.

The cold bath is not only useful as a Diaphoretic in acute diseases, but it is no less valuable as a Tonic in the chronic.

Wet sheets in the treatment of fever.

Dr. William Gill's description of the manner of treating Fevers according to the above practice.

Refer to American Journal, January, 1848.

TEPID AND WARM BATH.

TERMS applied to water ranging from 85 to 90, and 96° Fahrenheit.

Baths of this description often found efficacious as a remedy in diseases.

Applicable to all the cases in which the cold affusion has been recommended, and it is preferable where there is any doubt of the capacity of the system for an adequate reaction.

It is valuable for its *revulsive* operation, hence it is well adapted to the advanced stages of Fever—when, in addition to the impaired condition of the vital energies, there is added accumulation of fluids, on particular organs.

The effects and its applications, the same as the cold bath.

Vapor bath—

An agreeable and salutary practice, as well as a powerful remedy in some obstinate chronic diseases.

Construction of the bath—

It consists of a chamber into which the steam of boiling water, either simple or medicated, is conveyed through pipes from a common digester, or steam boiler. The patient is seated on a chair, and the vapor ascends through a perforated plate at the bottom, which soon envelopes the body, and is taken into the lungs.

In this apparatus the stimulant power of heat is modified and tempered by the moisture united with it. Its heating effect is further diminished by the copious perspiration which ensues.

The effects of the Vapor—

1. To stimulate the action of the heart and arteries.
2. To excite the action of the superficial arteries.
3. To excite free and profuse perspiration.

The effect of the employment of steam not only depletory, but *revulsive*—equal and due action is restored to the surface—agreeable sensations excited.

Thus it becomes a valuable auxiliary in several obstinate and severe diseases—such as depend upon suppressed perspiration—as

Rheumatism—diseases of the intestinal canal.

Dropsy—cutaneous diseases.

Sulphur Baths—

Baths of this description are not much used for their diaphoretic operation, but chiefly in the diseases of the skin. Having already referred to the subject under the article Sulphur, described the manner of constructing the bath, or fumigating chamber, and brought to notice the more prominent diseases in which it is efficacious, will conclude by observing that this mode of treatment in cutaneous diseases, has conferred a benefit upon human nature, little short of the discovery of vaccination, as a protection against small-pox.

Minor means—

Jenning's Vapor Bath—Bottles filled with hot water--bags with hot ashes, or sand, or salt.

DIVISION 6.

DIURETICS.

Medicines which promote the secretion of Urine.

THIS is effected by such substances as are known to exert an action upon the kidneys. Their office in health seems to be, to relieve the vascular system from any distension, from too large a quantity of fluids being carried into it, as well as to convey through the urinary passages such fluids, as having served the purposes of the animal economy, have become useless. In disease, these happy arrangements are broken up, and in some diseases, particularly those in which swellings occur in various parts of the body, the superfluous fluids, instead of being carried off by the natural passages, become effused in the several cavities of the body. It becomes therefore desirable, that we should be informed how these organs may be stimulated to a new and more active secretion, in order that these depositions may be removed, and the gland restored to a more healthy state.

How shall they be removed, or how shall the kidneys be excited to discharge them?

One of the methods of increasing the action of the kidneys is, to increase the quantity of fluid taken into the system, or drinks. This increase of drinks has always been considered the chief of diuretics. Can it, however, be safely trusted?

or rather, might it not as well pass into the cavities of the body, as by the kidneys.

This apprehension has prevailed so much with physicians, as to lead them to enjoin as much as possible an abstinence from drink, and it has been asserted, that by such abstinence the disease has been cured.

The truth of this statement will not bear a very rigorous inquiry.

Such cases are of rare occurrence, at least, and, generally, it is not found to be productive of benefit. In short, at the present time it is not attempted, being of very doubtful efficacy, and being a practice very difficult to enforce. Fortunately for the sufferings of the patient, it has been decided that the use of drink is safe in dropsy, and that the quantity of urine voided, when it is permitted, is usually equal to the quantity of drink taken in. The safest rule on this subject is, that when the quantity of urine voided is equal to the quantity of drink for the same time taken in, it is obviously safe to allow as much drink as the patient may desire, and by such indulgence, the disease is not found to be aggravated.

The *second* mode of increasing the action of the kidneys is, by introducing into the system such articles as are stimulating to them.

The saline diuretics most probably act in this manner. They are taken into the circulation, are brought to the kidneys in the course of the circulation, excite their vessels to increased action, and a large quantity of fluid is secreted.

The preparations of Potash, or Soda, all operate through the channel of the blood-vessels—they all enter into the circulation, and can be detected by chemical tests.

Nitrate of Potash, and the fixed alkalies, are of this nature, and the various preparations of them, as the Acetate, Bi-Tartrate, and Carbonates of Potash.

Many vegetable substances also pursue the same course, as Garlic, Spirits of Turpentine, Balsam of Copaiva, Veratrine—Decoctions of several plants, as the Blue Flag, Seneca Snake-Root, &c. To secure their favorable operation, their administration must be so regulated, as to produce no disturbance of the bowels.

The *third* mode in which Diuretics operate is, by increasing the action of the *absorbents*.

This is done by a class of medicines which produce an impression on the stomach, and by that impression, nausea and diminished action of the arterial system takes place. The arterial action, and the action of the absorbents, are in inverse ratio, so that when the latter is reduced, the former exercises

increased activity. Squills, Digitalis and Tobacco, are of this class.

The action of the absorbents is increased by medicines which produce a cathartic impression upon the bowels—Hydragogue cathartics of this character.

The action of the absorbents is increased, and diuresis produced, by medicines which increase the tone of the body in general. Tonics, or nourishing diet, may, under certain circumstances, have diuretic effects.

The action of the absorbents increased by medicines, which exert a stimulant impression upon the system. The preparations of Mercury, or other stimulants of this character.

It must be observed, however, that many of the class are very inefficacious, and it is the common imperfection of the whole, to be very uncertain in their operation—Sometimes the more feeble will succeed when the stronger have failed, and often after every variety of kind and combination has been practiced, the secretion of urine remains unaltered.

Diseases in which Diuretics are useful.

Dropsy is the principal disease.

In these cases there is generally a diminution of the urinary secretion. To re-establish it, becomes a prominent part of the duty of the physician—Diuretic medicines have, therefore, always properly been administered. They effect the removal of the fluid in some one of the ways I have mentioned. Unfortunately, we are ignorant of the circumstances which cause them sometimes to succeed, and sometimes to fail.

Where any organic derangements exist, no great benefit can arise from the use of diuretics alone—Only useful where there is a deranged condition of the absorbents.

In affections of the *Kidneys*, and in *Nephritic* and *Calculous* diseases, they are useful.

In *Gonorrhœa*.

In *Asthma*, *Dyspnœa*, chronic *Catarrhs*, and other chronic diseases of the lungs.

This class has its powers increased by combination—No class in which a combination of two or more substances, possessing similar powers, is so frequently important as in diuretics.

Thus, the use of potash, joined with the bitter vegetable infusions, is recommended by Sir John Pringle as an efficacious medicine, and we have derived great advantages by uniting the Bi-Tartrate of Potash with an infusion of Quassia.

The alkaline substances, by acting upon the bowels, are often prevented from reaching the kidneys, so their diuretic

effect may often more certainly be secured, by giving an opiate at the same time, according to the practice of Dr. Mead.

A combination of squill with digitalis, and some of the less purgative preparations of mercury, as the blue pill, is occasionally very active in its diuretic operations, and in children, or in old and feeble people, the union of the sweet spirits of nitre with infusions of vegetable tonics, appears to be often very serviceable.

Rules in the administration of Diuretics.

RULE I. The diuretic effect of any article in general, cannot be obtained, should it produce any disturbance of the bowels, the cathartic and diuretic action of medicines being opposed to each other.

RULE II. In the administration of diuretic medicines, it is equally necessary to attend to the state of the skin. If during their administration, these vessels are excited by external warmth, the action of these medicines is diverted from the urinary organs to the exhalents on the surface, and occasions diaphoresis. To produce a diuretic effect, the surface should be kept cool.

RULE III. Diuretics should not, if it can be avoided, be administered to a patient in bed.

RULE IV. When the full effect of the medicine is wished, give diluent drinks freely.

PARTICULAR DIURETICS.

Saline Diuretics—Preparations of Potash—Sub-carbonates and Carbonates.

These operate by entering the circulation, and produce their effects by stimulating the secretion of the kidneys—employed in their pure and impure state—the ashes of several plants recommended and employed.

They are given in doses of ℥i. to ʒiss., three times a day, and largely diluted with water—Their use continued for some time—Thus employed, their diuretic effect is exerted.

The objection to the Carbonates—Chiefly used where there is acidity, and other deranged conditions of the stomach—Being not only more unpleasant, but inferior in their diuretic

properties to the other combinations of this alkali, they have fallen into disuse.

Acetate of Potash—Also Sal. Diureticus—more active. Preparation—Had much reputation, but has declined in general estimation—May be so administered as to act as Purgative, or Diuretic.

Doses— \mathfrak{z} i. to \mathfrak{z} ii. as Diuretic, largely diluted with water; \mathfrak{z} ii. to \mathfrak{z} iii. as Cathartic.

Bi-Tartrate of Potash—*Cream of Tartar*—Preparation—found in nature—in the juice of the grape—deposited from wine—most valuable of the preparations of Potash—Employed in cases attended with Febrile excitement.

Administration—dissolve \mathfrak{z} ss. to \mathfrak{z} i. and \mathfrak{z} ii., in a quart of water, which quantity is drunk during the day.

Form of Dropsy to which it is best adapted.

Experiments of various practitioners, and their success.

It is a useful article, but not as actively diuretic as you would be led to believe from the experiments of the individuals named.

It is generally applicable.

Is agreeable to the taste.

Can be continued longer without exciting disgust, or disagreeing, than most others.

In using this with the other preparations, it is necessary to continue their use for some time—twenty days to two or three months.

Often no diuretic effect for the first twenty days, though afterwards beneficial.

I have used this preparation, and generally well pleased.

It succeeds in anasarca, sometimes in ascites.

Combined with an infusion of Quassia in debilitated habits, may be considered a useful, but not powerful diuretic.

Must expect disappointment in treating dropsy.

Objections to the use of the Bi-Tartrate.

Excites nausea and flatulence.

Weakens the appetite.

Injures the tone of the stomach—hence it becomes necessary to employ others.

Cream of Tartar recommended in *Dysentery*, particularly by Dr. Stokes—vide Lectures, page 93.

Combined with Jalap in the following proportions, it forms a useful hydragogue cathartic:

R. Bi-Tartrate of Potash, \mathfrak{z} i. to \mathfrak{z} ii.

Powdered Jalap, xv. to xx. grs.

Mix and make into a powder.

Adulterations---Sometimes with white silicious pebbles, bruised into small fragments---sometimes with Tartrate and Sulphate of Lime.

What changes does the compounds of Potash undergo in the digestive organs?

Those preparations formed by a union with vegetable acids are decomposed---the acid is digested, and the potash, probably combined with carbonic acid, enters the system. It is not, therefore, as Acetate or Bi-Tartrate of Potash, that it is found in the circulation, but as Carbonate.

The compounds with mineral acids are not affected in the same manner---they are not decomposed---hence they enter the circulation in their original state, as for example the Nitrate of Potash.

Nitrate of Potash---Nitre, or Saltpetre.

Medicinal Properties---Refrigerant and diuretic---by the former is meant an article which abates heat and thirst, and diminishes the force of the circulation.

Hence it becomes useful in tonic dropsy, given in doses of $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ss.}$, largely diluted with water, or in cider---Its diuretic operation is promoted, and it is less likely to disagree with the stomach when thus administered.

That this salt is separated by the kidneys, and found in the urine, many facts may be adduced to illustrate.

Much used in *Hæmoptysis*---given in doses of from $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ss.}$ in the twenty-four hours. Its good effects depend upon its stimulating impression upon the capillaries, since the fluids becoming impregnated with this salt are conveyed to the affected part, where it may excite a constriction of these vessels, and an abatement of the hæmorrhage.

STIMULATING DIURETICS.

Tincture of Cantharides.

Natural History of the Cantharides, or fly---Found in all the Southern parts of Europe, particularly Spain. They inhabit the ash, elder, lilac and other trees. They are collected by shaking them from the branches into a cloth spread beneath the tree, and afterwards killed with the fumes of vinegar or sulphur.

Appearance of these insects---

Color, bright green.

Smell, foetid.

The active principle termed Cantharidin.

This article has been long employed in medicine—has a strong determination to the urinary organs.

It is remarkable for its irritating operation upon all the organic structures—These particularly specified. But though exercising an irritating operation on the urinary organs in large doses, occasioning difficult and painful discharges of urine, or its suppression—in well regulated ones, it occasions copious discharges of urine.

It is *proscribed* in habits of a Plethoric or Inflammatory nature.

It is best adapted to the *atonic states* of Dropsy, where the system is much debilitated, and where the use of stimuli is required—From ʒ ss. to ʒ iii. may in such conditions be administered, and a copious flow of urine will commonly be found to take place.

In *Dropsies* which succeed *Scarlet Fever*, or other diseases where tonics are required, the Tincture may be employed in conjunction with Cinchona.

In *Diabetes*—a case is recorded in the North American Archives, in which a cure was effected under the use of the Tincture of Cantharides.

Cantharides is, however, more beneficial in certain local diseases of the urinary and genital organs.

In *Incontinence of Urine*, proceeding from relaxation of the sphincter vesicæ.

In *Incontinence of Urine*, which many young people experience during sleep.

In *Gleets* and long *Protracted Gonorrhœa*, this article has long been much extolled. It is worthy of notice, that when a cure can be accomplished by this substance, benefit is soon derived from its employment.

Where it is beneficial. from the great tendency of Gleets to return, its use should not be discontinued as soon as the discharge ceases, but persisted in for ten days, or longer, after the symptoms have gone off.

In employing this article, begin with a small dose, and increase until its specific effects are obtained.

The following combinations succeed better than the simple article :

R. Tincture of Cantharides, ʒvi.
Balsam Copaiva, ʒii.—Mix.

Dose—x. to xv. drops, three times a day.

Or,

R. Tincture of Cantharides.
Tincture of Chloride of Iron, each ʒi.

Dose—xx. m. at the beginning—increased.

In *Leucorrhœa*, a disease depending upon a variety of causes, difficult to decide upon, the remedy best adapted. The treatment must have reference to the cause which produces the disease, the local condition of the uterine system, and the general state of the constitution. When it can be employed, it is the practice to begin with a small dose, and increase until a puriform discharge takes place from the vagina.—Carried to this extent, it appears to excite a new action, which counteracts the existing diseased one.

In *disordered* conditions of the *genital organs*, proceeding from depraved habits—as seminal weakness—nocturnal pollutions, it is also employed, and with prospects of success, acting upon the portion of the bladder near which the vesiculæ seminales are situated.

In *Cutaneous diseases* of an obstinate character, combined.

In the opinion of an eminent physician, Cathartics, Tincture of Cantharides, and Fowler's Mineral Solution, skilfully managed, and accompanied with strict attention to diet, will lead to very satisfactory results in the treatment of cutaneous diseases.

A circumstance calculated to weaken the inferences drawn from experiments upon the inferior order of animals, in connection with the human subject, is furnished by this article—which is, that while they are so peculiarly irritating to the human system, there are animals which feed upon them—the hedge hog devouring hundreds with impunity.

Family *Coniferae*—*Pinus Palustris*—Pitch Pine.

From this species of pine, a resinous juice is obtained by making incisions into the tree. It is thick and tenacious.—From it the Oil or Spirits of Turpentine is obtained by distillation.

Qualities—

Light, limpid and volatile.

Smell, strong and penetrating.

Taste, pungent.

Properties—Stimulating—directed to the urinary organs, giving odor to the urine, and even exciting inflammation of these organs.

Acting upon these organs as a stimulant, it has been employed for its diuretic operation, and given in doses of xx. to xxx. m. three times a day, larger doses acting as a cathartic, showing the influence of quantity or dose upon the specific effects of a medicine.

The best form of administering the Oil of Turpentine is, to triturate it with mucilage or honey, and thus diffuse it through some aromatic water, as follows :

R. Spirits of Turpentine, gtts. xv. to xx.

Honey,

ʒiiss.

Cinnamon Water,

ʒi.—Mix for a draught.

As a diuretic, the Spirit of Turpentine is applicable to the same state of the system as the preceding article—Not often resorted to for its diuretic operation.

In obstinate cases of Gleet and Gonorrhœa of long standing, this article is a very useful auxiliary, combined with the Balsam of Copaiva.

The many and valuable uses of this article will be specified on a future occasion.

Dose as a diuretic, xv. to xx. m., increasing several times a day.

Family *Leguminosæ*—*Copaifera Officinalis*—Copaiva—Balsam of Copaiva.

Allied in its effects to the Spirits of Turpentine—The term Balsam is not correct—It is restricted to compounds of resin and benzoic acid, and therefore inapplicable to this substance—neither is it a liquid resin, but a compound of volatile oil and resinous matter, therefore termed an oleo-resin—Proved to be so by distillation, when a volatile oil passes over, leaving an insipid resin in the retort.

Qualities of the oil—

Highly odorous and pungent; the virtues of the article dependent upon it.

Resin insipid.

The oleo-resin is obtained from the *Copaifera Officinalis*, a tree growing in the West Indies and South America. It is obtained by boring holes in the trunk near its base, from which it flows out rapidly. It is colorless when flowing from the tree, after which it becomes of an amber yellow.

Qualities—

Smell, fragrant and powerful.

Taste, bitterish, heating, aromatic, of long duration in the mouth.

Soluble in alcohol, æther, fixed oils and volatile.

Insoluble in water.

Its essential constituents are—

Volatile oil.

Resinous matter.

A minute portion of an acid, called Capaivic acid.

Effects and operation of this article—

In doses of a few drops, it excites the energies of the stomach, and sometimes favors, rather than disturbs the functions of this organ.

In larger doses, it creates a sensation of warmth in the stomach, and gives rise to eructations having the taste of the

article, nausea, not unfrequently vomiting. Its continued use often impairs the appetite and disorders digestion.

In still larger doses, as i., ii., or z iii., it excites considerable irritation, and this principally exerted upon the large intestines---Effects of this irritation.

Introduced into the circulation and separated by the kidneys---the urine acquires the odor of the Balsam---A portion also passes off by the lungs---hence it is readily detected in the breath of persons taking it.

Diseases in which it is employed---

In disease of the *Kidneys*---not much resorted to in these cases.

In diseases of the *Urino-Genital* organs---In Gonorrhœa---Gleet---Leucorrhœa---and in these cases often exhibited. The period of the disease in which it should be employed. By some it is contended to be adapted to the early stages of the disease, and during the most inflammatory symptoms. By others, the practice is to moderate these symptoms by rest, diluent drinks, moderate and spare diet, and the use of cathartics every other day until the urgent symptoms have subsided. This the practice recommended.

Its *modus operandi* in curing Gonorrhœa---Either by its cathartic and revulsive operation, or by being absorbed, impregnating the urine, and in its passage through the urethra, substituting a medicinal impression for that of the existing disease of the membrane of the urethra.

From its utility in increased and morbid discharges of the mucous membrane, has been employed in *Chronic Catarrhs*, humid coughs, and the chronic affections of the pulmonary organs---Resorted to in cases where action has subsided, and the discharges kept up from relaxation, and enfeebled morbid action of the vessels of these parts.

Administered in the form of an emulsion, by being rubbed up with mucilage, the yolk of an egg, or with almonds---Employed in diseases of the mucous membrane of the Intestinal canal.

Administered in doses of xx. m., combined with Laudanum, every four hours, in mucilage or some aromatic water.

Forms of exhibition---

In drops, on sugar, or any aromatic tincture---in red wine, in sweet orange juice.

In the form of mixture as follows:

R. Balsam Copaiva, z ii. to z ss.

To be well rubbed with mucilage of Gum Arabic, the Yolk of an egg, or Sweet Almonds blanched, one dozen---add

Water slowly, z vi.

Sweet Spirits of Nitre, z ss.

Laudanum, z i.---Mix.

The dose will be half to one oz., three or four times a day
 ---In some cases, advantage is derived by adding to the mixture

Oil of Copaiva, \bar{z} i. to \bar{z} ii.

The Oil of Copaiva may be administered in a similar manner, and as it is less unpleasant, be substituted.

R. Oil of Copaiva, \bar{z} ii. to \bar{z} ss.
 Powdered Gum Arabic, \bar{z} ss.
 Cinnamon Water, \bar{z} ii.
 Simple Syrup, \bar{z} iss.
 Tincture of Opium, \bar{z} ss.---Mix.

The dose half oz., repeated several times a day, increased,
 or

Combined with Cubebs, as follows:

R. Balsam Copaiva.
 Tincture Cubebs, each \bar{z} ii.

Dose, \bar{z} i. three times a day, in any agreeable vehicle, increasing the quantity.

Or,

Administered in the form of an electuary, as follows:

R. Conserve of Roses, \bar{z} ii.
 Powdered Cubebs, \bar{z} i.
 Balsam Copaiva, \bar{z} i.
 Oil of Cubebs, \bar{z} ii.

These ingredients to be well mixed together in a mortar, and direct a lump of the size of a marble to be taken three or four times a day. The quantity to be increased.

Or,

In the form of pills---

Balsam Copaiva, \bar{z} i.

Calcined Magnesia, as much as sufficient to make a mass of proper consistency---it may readily be rolled out, and divided into pills of a convenient size. The pills become more solid after a few hours.

Magnesia appears to act specially upon the Balsam, and to this may be mainly attributed the solidification.

Balsam of Copaiva, administered also in the form of Capsules---Preparation.

In the form of Enema---

Rubbed up with mucilage, or the yolk of an egg.

In this manner it may be given to the extent of \bar{z} ii. to one oz. a day. To the enema a little Laudanum is added, to allow of its retention in the rectum and its absorption. Patients treated after this manner were quickly cured in six and seven days, or at least had their symptoms mitigated. By this mode of exhibition, the nausea and vomiting following its administration by the mouth may be prevented.

Preparations of the Balsam---

The Oil as being much less unpleasant, may be substituted for the Balsam, according to the already furnished formula.

The *Resin* is what remains after the oil has been drawn off. It has been administered in pills.

The dose is viii. grs. made into two pills, three times a day. Its properties much impaired.

Consolidated Balsam---prepared by adding the distilled oil to the Resin. Dose the same.

Adulterations---This Balsam is easily adulterated with the thinner oils, or with Turpentine. The adulteration may be detected according to the test of M. Bucholtz, who asserts that if it does not dissolve in a mixture of four pts. of pure alcohol, and one of æther, it is adulterated.

The evaporation of a drop of the suspected Balsam upon a piece of unsized paper, ought to be added. If the Balsam be pure, a resinous spot is left---but if it is adulterated with a fixed oil, it is greasy and soft.

Family *Polygalæ*---*Polygala Seneka*---Seneka Snake-Root.

Grows wild in many parts of the United States, particularly in Virginia.

The root, the part used, is woody and inodorous.

Taste insipid, and mucilaginous at first, but soon changes to an impression acrid and biting.

The bark of the root is most active.

Properties, very various.

It is an active and diffusible stimulus, and acts upon most of the secretory organs---These enumerated.

For its Diuretic property it has been much celebrated, particularly by Dr. Milman, in his treatise on Dropsy.

He relates several cases in which it has been used---some were cured, and others relieved.

The cases appear to have been swellings of the cellular membranes, but little effusion existing in the cavities. The patients were treated with the decoction of seneka, united with the Bi-Tartrate of Potash.

Dr. Hartshorn, of Philadelphia, has also spoken of this article in high terms, but it was conjoined with the nitrous powders, until Ptyalism was induced.

Dr. Percival has also added his testimony to the use of this article, in the different forms of dropsy.

In our opinion this article is not alone sufficient, but requires the aid of others. In the first case cited, it was combined with the Bi-Tartrate of Potash, and in others with the nitrous powders, and from the acknowledged efficacy of Calomel, in

quickening the action of the absorbents, much of the success which followed is to be attributed.

In *Hydrothorax* it cannot be trusted.

The Seneka is highly valuable as an Expectorant—Used in the advanced stages of *Pneumonia* and *Pleurisy*—also in *Cynanche Trachealis* or Croup.

Directed to be used in the very commencement of these diseases, upon the supposition that there was something in the acrid and irritating qualities of the root, which was capable of arresting Inflammation of the Pulmonary organs. In all these cases, depleting remedies not to be overlooked.

It is properly employed in the asthenic varieties of Pulmonary Inflammation, and in the declining stages of the more acute forms. When the patient is harassed with a dry cough, difficult expectoration, with slight feverishness and a constricted skin, it will be found to afford great relief.

In *Cynanche Trachealis*, it is employed in similar states of the system.

It is given in the form of strong decoction, combined with Liquorice Root, which takes somewhat from its unpleasant taste.

Dr. Archer's formula was as follows :

R. Seneka Snake-Root, $\frac{3}{4}$ ss.—boil in

Water, $\frac{3}{4}$ viii. to $\frac{3}{4}$ iv.

Dose, a tea-spoonful every fifteen minutes until it operates, which is commonly by vomiting.

The expectorant quality of this article depends upon a peculiar acrid principle, which has been called Polygalic Acid. It is to this article that the impression upon the throat, experienced by taking either the decoction or powder, is owing.

The various other uses of this article will be treated of under other heads.

For curing the bite of the Rattle-snake, wholly inefficient. +

The decoction, as commonly prepared, is made as follows :

R. Seneka Snake-Root, $\frac{3}{4}$ ii. to $\frac{3}{4}$ ss.

Liquorice Root, $\frac{3}{4}$ i.

Boiling Water, lb iss.—boil to one pint.

Dose, half to one oz.

Of the powder, grs. x. to xx.

(c). *Diuretics which operate by increasing the action of the absorbents.*

The first of this division is the *Scilla Maritima*, or *Squills*. Its natural history has been already detailed.

Properties very various—and they are Diuretic, Expectorant, Emetic, and Purgative.

As a diuretic, it is adapted to all the forms of dropsy, but chiefly useful in Hydrothorax.

Medical treatment in the early stages of *Hydrothorax* does a great deal, principally by means of diuretics, and Squill is the most powerful of any of them.

The solvents of this article are numerous.

Water, Vinegar, Wine, Alcohol, extract its active principles, and any of them are preferred to the powder.

Attention to the doses of this article is very important.

It never operates so powerfully as when given to the fullest extent the patient can bear without sickness.

Beginning with a small dose, it may be given to the extent of $\frac{z}{ss}$. to $\frac{z}{i}$. in the twenty-four hours. Carried to this extent, it will be found to operate very favorably, and that in a few days. The urine becomes pale and copious under its use, and proportional relief is obtained in the breathing and in the diffused swelling. Whether it will cure, depends upon the cause which has given origin to the disease.

In Hydrothorax when complicated, Squill is combined as follows :

℞. Powdered Squills, grs. ii.

Calomel, gr. i.

Make into a pill—taken twice or thrice a day.

Or,

℞. Nitrate of Potash, grs. x. to xx.

Powdered Squills, grs. ii. to iv.

Make into a powder, and taken several times a day.

Or,

℞. Powdered Squills, grs. iii.

Blue Mass, grs. ii.

Powdered Digitalis, gr. $\frac{1}{2}$.

Make into a pill—to be taken night and morning.

Besides its diuretic operation, all are aware of its value as an Expectorant in diseases of the *Respiratory* system—operating very beneficial in relieving the lungs when oppressed. It is resorted to in Catarrhal and other Pulmonary affections, when Inflammatory action has subsided.

In *Asthmatic* affections, or Dyspnœa, occasioned by the accumulation of viscid phlegm, it has also been held in the highest estimation.

This article is of much efficacy in the diseases of children, connected with increased secretion of mucus in the bronchial passages, and difficult expectoration. The preparations of it are safe, and easily administered—they often excite vomiting—and by stimulating the throat and parts adjacent, they promote expectoration.

The activity of this article much increased by combination with the *Polygala Seneka* and Tartarised Antimony, as in the preparation termed *Hive Syrup*—and in Asthma and Dyspnœa without fever, Squill combined with Ammoniacum is very useful.

Officinal preparations.

The most important are—

1. Vinegar of Squills.
2. Oxyssel of Squills.
3. Wine of Squills.
4. Tincture of Squills.

The infusion is a very convenient and useful form of administration, and in my practice one of the most successful in removing dropsical effusions.

It is prepared as follows :

℞. Squill Root, $\frac{3}{4}$ ii.
 Bitter Orange Peel, $\frac{3}{4}$ ii. to $\frac{3}{4}$ ss.
 Boiling Water, $\frac{3}{4}$ xii.

Dose. half to a wine-glassful, three or four times a day.

Dose Powder, ii. to viii. grs.

Tincture, $\frac{3}{4}$ ss. to $\frac{3}{4}$ ii.

Vinegar, the same.

Family *Scrophulariæ*—*Digitalis Purpurea*—*Foxglove*.

Natural History—

Root, biennial.

Stalk erect, rising to the height of four or five feet.

Leaves large, oval, narrowed at the point, downy.

Flowers, in a long terminal spike, bell-shaped, purple, mottled, having a resemblance to the finger of a glove.

This plant native of England and Germany, but naturalized in this country.

The flowers appear on the second year.

The leaves only are used, and they are gathered when the plant is flowering. They are carefully dried in a warm room, through which a current of air is passing—and when completely dried, may be compressed into moulds, or kept in bottles closely corked, excluded from light and moisture.

Chemical analysis—

From this article a peculiar proximate principle has been obtained, termed Digitalin—It is white, inodorous, crystallizable with difficulty.

Properties, intensely bitter, having all the effects of Digitalis in very small doses.

Tannate of Digitalin—an inferior preparation.

Effects of Digitalis on the system—

It is decidedly narcotic, and seems to be more directly sedative than any other of the class.

The effects upon the system seem to be immediate and direct, with very little of a stimulating operation in the first instance.

In a full dose, it exhausts the powers of the body—lowers the pulse from seventy-five to forty and thirty pulsations in a minute—affects the stomach with nausea and vomiting—affects the brain with vertigo and dimness of sight, etc.

In its action upon the system, it exhibits some very striking properties.

1. Its action upon the pulse.

A strong pulse of the usual or increased quickness, will sink as low as forty pulsations, and sometimes less, and the effect may be kept up for days by a less dose than that which originally excited it.

2. Another striking property—May be given for a considerable length of time without any sensible action upon the system, when its powers become suddenly developed, and though it is discontinued, its effects will remain for several days—similar in this respect to Mercury.

The term applied to this property is *cumulative*. It will be prudent to suspend from time to time the exhibition of the remedy, in order to guard against the effects of this alarming accumulation.

3. Another property in Digitalis—that it is influenced in its effects by the position of the body—First noticed in the Edinburgh Medical and Surgical Journal. The pulse will be observed lower in the horizontal posture, more frequent in the sitting, and still more so in the erect.

Posture must be attended to in studying the effects of this article on the system. If desirable to reduce the frequency of the pulse, the patient must be kept in a horizontal position.

Medical History—

This article was brought into notice by Dr. Withering in the year 1775, though its properties were known earlier. In the early part of that year, his opinion was asked respecting the utility of a family recipe in the cure of Dropsy, in which Digitalis was obviously the most important in the compound.

He investigated the properties of the plant for ten years, and then gave the result of his experience in a valuable treatise, published in 1785. The *diuretic* properties of *Digitalis* would appear to be established—and so far, he observes, as the removal of the water will contribute to cure the disease, so far may it be expected from this medicine.

A great number and variety of cases are detailed, and when the disease was *unconnected with visceral obstructions*, and *not encysted*, great relief was afforded, and in the majority of cases, cures were effected. It is these complications which give to

the disease its unmanageable and fatal character, and where they do not exist, a variety of remedies will be found quite as effectual as digitalis in the removal of the effused fluid.

The constitution is to be attended to in its administration—Operates best in a weak and lax fibre, where the œdematous limbs readily pit on pressure—where the complexion is pale and transparent.

Digitalis is not equally useful in all the forms of *Dropsy*.

In *Hydrothorax* it is much less successful.

In *Ascites*, a remedy of more utility—The condition of the system to be attended to—Where there is any portion of activity in the pulse, and much general strength remaining not to be depended upon—Chiefly beneficial when the pulse is feeble and intermitting—the countenance pale—the skin cold. One fact important to be known is, that when it is favorable, relief is afforded early, and there is no advantage in persevering with it longer than a week, if it does not discover its efficacy in that time. The *modus operandi* of Digitalis in these cases.

Digitalis useful in the *Anasarca* which follows Scarlatina—Testimony of Dr. Beddoes in this form of the disease, and also Dr. Withering.

To obtain its diuretic effects, it is best administered in infusion. The formula is as follows :

℞. Dried leaves of Digitalis, ʒ i.
Boiling water, ʒ viii.—Simmer to ʒ vii.
Cinnamon water, ʒ i.—Mix.

Dose for an adult, ʒ ss. several times a day—children less.

The following directions to be observed—That its use be continued until it either acts upon the kidneys, the stomach, the pulse, or the bowels—and when its effects are exhibited upon any one of these organs, it should be discontinued, and the patient will not suffer from its exhibition, nor, in the language of Dr. Withering, will the physician be disappointed in any reasonable expectations.

A Diarrhoea supervening, or the medicine acting as a Purgative, has impeded the flow of urine and stopped its diuretic effects—on this account its use should not be continued.

Such are the principal directions and cautions to be observed in the use of this article. Why have we such contrary opinions of its efficacy? They proceed from inattention to the quality of the plant—its preparation—the kind of constitution to which it is best adapted, and the cautions to be observed in its administration.

When carried to the extent of affecting the system, either by the pulse, the stomach, the bowels, or head, we have on several occasions observed its diuretic operation exerted to a

considerable degree; and like other practitioners, began to be sanguine in our expectations of a cure—We have been disappointed, and are convinced that the effusion we call dropsy, is often only a symptom of greater derangement, or of alterations in organic structures, which, while they continue, though the effusion may be removed, yet it soon returns; and by exhausting the powers of life, by draining the vascular system, and by injuring the texture of parts into which it is poured, by the confinement of the patient, and the anxiety he suffers, the case terminates fatally. Still we are not to abandon a patient under these circumstances, but approach the treatment with the use of means, which may, directly or indirectly, be made to bear on the case, and Digitalis, employed as directed, may prove useful.

The Diuretic operation of Digitalis is increased by combination, as follows:

R. Powdered Digitalis, gr. ss.
 Calomel, gr. ss.
 Dover's Powder, grs. viii.—Mix for a powder.
 Or,

R. Powdered Digitalis,
 Powdered Squills, each gr. i.
 Calomel, gr. ss.—Mix for a pill.

To be taken three times a day.

The next class of diseases in which Digitalis has been employed, is in *Hæmorrhages*.

It becomes valuable in this class from the property of reducing the action of the heart and arteries.

This is a property of no small value, since it affords us the means of lessening the circulation without further depletion—Being thus a substitute for the lancet.

In *Hæmoptysis*—In this species of Hæmorrhage, when it occurs in a full habit, with a constitution little impaired, pulse full, with general excitement, more benefit will be afforded by venæsection, and other means of depletion, until the tone of the system is lowered.

When this is done, the pulse is often too frequent, and the circulation is so rapid, that if coagulum is formed, it cannot resist the impetus, but yields, and the hæmorrhage is renewed. Further, venæsection in this stage of the system is forbidden, and Digitalis is one of our best remedies, for it never fails to lessen the circulation, and enables the vessel to contract.

In other cases, where the habit is irritable and delicate, attended with cough, pain in the side, quickened pulse, Digitalis, with the use of blisters and demulcents, is very usefully employed, and given in such doses as just to affect the pulse, and keep it within the ordinary standard.

In *Uterine Hæmorrhage* it is generally unsuited. This species of hæmorrhage requiring something to constrict the bleeding vessels, or excite contraction of the uterus, and we have better remedies in the Acetate of Lead, Ergot, &c.

Digitalis has been declared capable of curing *Pulmonary Consumption*, and numerous cases of supposed cures have been published—By Dr. Darwin it was supposed, that by its power of promoting absorption and retarding the action of the arterial system, many of the symptoms might be mitigated, and even cured. Accordingly, he says, that in its application to a variety of cases, where the existence of Tubercles was indicated by every symptom, a full and fair trial confirmed the opinion he had entertained. There has been collected from the writings of Beddoes, Kinglake, Fowler, McLean, and others, reports of one hundred and sixty-one cases treated by Foxglove. Of these, eighty-three were said to have been cured, and thirty-five relieved.

Notwithstanding these reports of the utility of Digitalis in Pulmonary Consumption, candor obliges me to confess that present experience with this article, by no means entitles it to these high encomiums. As a proof of it, I remark, that Consumption is still a fatal disease—much so in our country, and still more so in Great Britain, where Dr. Heberden remarks that one-fourth of all the deaths is by Pulmonary Consumption.

There are many Pulmonary diseases, bearing a close resemblance to Phthisis ; this article has been employed, and success following its use, has caused it to be considered a remedy in this complaint. The wasting of the flesh which occurs in Phthisis, is common to other diseases, with the fever, pain, cough, thick expectoration, difficulty of breathing, &c.

These symptoms are often observed in Catarrhs, as a consequence of Pleurisy, and other cases, in which the patient often recovers. In Consumption, the action of disease is peculiar, and is different from the morbid action occurring in other parts of the body. It generally arises from Tubercles, which are of a nature analogous to Scrofula, being very slow and tedious in their progress. This progress is sometimes completed, and the tubercle heals—but it is often succeeded by a multitude of others, which in succession inflame the suppurate. It is this constant disease to which there is no end, that wastes the system, and renders the case incurable.

The singular property of Digitalis to lower the pulse, without increasing evacuations to any degree, renders it particularly valuable in these cases. Hitherto this object has only been obtained by withdrawing from the circulating fluids, or

by producing nausea. Digitalis is so far an invaluable remedy, as it enables the physician, in most cases, to accomplish this object.

With a reduction of the frequency of the pulse, relief is afforded to many distressing symptoms of the disease, as pain in the side, cough, dyspnoea, fever, and if the remedy is resorted to early, and proper attention paid to diet and exercise, much benefit will, doubtless, be derived from its use.

Even when the disease is more advanced, and from the feeble and irritable state of the patient, bleeding can no longer be employed; Digitalis, in such doses as keep the pulse at a more natural standard, may be highly beneficial. But in the more advanced stages, when purulent expectoration, and its train of distressing symptoms exist, nothing can do more than palliate and smooth the avenues of death.

In the *Phlegmasie* it has been employed, and spoken favorably of by many. It can only be employed advantageously after the proper exercise of the antiphlogistic remedies. Our efforts will be more successful by the use of such means as are better calculated to restore secretions, than simply reducing arterial action. This is the important object to be kept in view in the treatment of diseases, and we effect it more readily by other remedies.

In *Delirium Tremens*—Dr. Glass, of Wirtemberg, has given the result of his experience in the use of Digitalis in this disease, eleven out of thirteen cases having recovered under its administration. He employed the infusion, and carried it so far as to induce Digitalism.

Digitalis has been employed in *Epilepsy*, but with results not very decided or satisfactory—Manner of administration.

The external use of Digitalis.

This method of employing Digitalis has been recently noticed, as not only a safe mode of employing the article, but an effectual one. Reports from various sources of the utility of Digitalis and Squills, endermically, in the treatment of Acites and Ansarca.

The abdomen in some instances is blistered, and to the tender surface compresses wet with a strong infusion of Digitalis is applied, or a Tincture of Digitalis, Squills and Soap, rubbed freely and diligently into the skin of the abdomen, night and morning. In a few days, the flow of urine has increased; and in a week, the water has been completely evacuated.

We have had recourse to this method in two instances, but without any apparent advantage.

Forms of administering Digitalis—

In Powder, Infusion and Tincture.

Dose, powder, ss. to one grain, made into a pill.

Tincture, x. to xx. m., three times a day, in any aromatic water.

Infusion prepared as stated.

When the Narcotic effects of the article are desired, as in Pulmonary Consumption, the powder or tincture is preferred.

When the Diuretic, the infusion.

Symptoms of the morbid operation of *Digitalis*.

They are retardation of the pulse, palpitations, faintings, sickness, purging. There is likewise, a membranous tensive pain of the head, with a disturbance of the functions of the brain. When these symptoms occur, the medicine must be omitted.

When the symptoms run high, and the poisonous operation of the medicine is exhibited, they must be corrected.

The correctives—an emetic if the degree of prostration does not prohibit it. Stimulants—as æther, brandy, volatile alkali, &c.—Sinapisms and blisters—Opium has been successfully employed to counteract the deleterious agency of *Digitalis*.

Family *Solaneæ*—*Nicotiana Tabacum*—Tobacco.

Allied to *Digitalis* in its structure and effects.

Natural History already detailed.

Its diuretic property to be considered.

Tobacco was recommended as a diuretic by Dr. Fowler, who published a number of cases of *Anasarca* and *Ascites*, as relieved by it.

It has been spoken of by other writers—as Ferrier, and others.

Dr. Garden, a distinguished physician of this city, spoke of the great efficacy of the Alkaline Salt of Tobacco in Dropsies, and from this hint communicated to Dr. Hope, Dr. Fowler was induced to make trial of this article.

Upon the faith of these recommendations, I have employed Tobacco in a few cases of dropsy—But it is a medicine, the effects of which it is very difficult to regulate. In small doses it is a very uncertain diuretic, and in larger doses it causes such distressing nausea, that practitioners have almost ceased to use it—So that I may say, we have much to learn in the administration of the remedy, so as to render it certain or convenient in any cases of dropsy.

These objections to the use of the article, I have obviated, by commencing with a small dose of the tincture, and increasing until some sensible effect was produced.

Thus administered, we have been much pleased with its effects in the cases in which it was employed.

Commencing with a few drops, three times a day, the quantity has been increased to lx. m., three times a day, with effects very decided upon the urinary secretion, frequently observing from three to four quarts discharged during the night; and where there is no organic injury, may be considered a remedy in dropsy, as its diuretic effect is considerable.

From the uncertainty which attends diuretic medicines, it is proper to make trial of a greater number than we are in the habit of employing.

Forms of administration—Infusion and Tincture.

Preparation of the Infusion—

R. Dried leaves of Tobacco, $\frac{3}{4}$ i.

Water, $\frac{3}{4}$ xiv.

Spirits of Wine, $\frac{3}{4}$ ii.—Digest for a week.

The dose for an adult, sufficient to produce the diuretic effect, is xx. m. three times a day, increasing until some sensible effect is produced.

It may also be given in the form of a saturated vinous tincture. The dose the same.

In giving medicines, it may also be observed as a general rule, that they can less readily be retained in the morning, than at any other time. The doses should be smaller at this time of day, while they may be augmented in the evening.

It should also be noticed, that between constitutions which are very nervous or irritable, or those very robust, or torpid, or long accustomed to the use of Tobacco, the dose will admit of great and surprising variations.

From the sedative action exerted by this article upon the heart and arteries, closely allied to Digitalis, it has been employed in diseases of the chest.

In chronic *Catarrhs*, *Phthisis Pulmonalis*, and other chronic diseases of the Lungs, it is an article more to be relied upon, in some cases, than Digitalis.

It is given in the same doses, x. or xx. drops, three times a day, in a little water.

Family *Calchiceæ*, *Colchicum Autumnale*—Meadow Saffron.

This plant is a native of England and Germany.

Root perennial, bulbous, brown coat externally, size of a tulip, fleshy, and contains a milky juice.

Flower purplish, appearing in the Fall, without stem or leaves—anthers yellow.

Leaves appearing in the spring, twelve inches long, flattish, dark green.

Different opinions are expressed of the sensible qualities of the root.

By some said to be void of taste and acrimony.

By others, highly acrimonious. These contradictory statements are readily explained by the season of the year when the roots are taken out of the ground. They are inert in autumn, because flowering—inert in the spring, because the leaves appear—active in mid-summer, not being engaged in giving nourishment to the leaves or flowers.

An Alkaline principle has been obtained from the root, and termed Colchicine—a very active substance—one-tenth of a grain given to a cat, caused such copious alvine discharges, as to occasion death.

The root of this plant was introduced into practice by Baron Storck, who employed it in the form of an oxymel in the Hospital of Vienna, in *dropsical cases*.

Prepared as follows :

R. Recent root sliced, ζ i.

Vinegar, ℥ i.—digest with a gentle heat forty-eight hours, strain—add honey in the proportion of two parts to one of the vinegar—boil to a proper consistency. Dose, one drachm, increased to one oz.

With this oxymel, cases of dropsy were cured which were considered desperate.

This preparation still popular in France and Germany, but little known to us. It has been superseded by the use of the Colchicum Wine, which is prepared in the following manner :

R. Fresh root of Colchicum, sliced, ζ iss.

Sherry Wine, ζ xii.—digest for two or three days, and filter through paper.

This is a very active preparation, more so than the oxymel, and when given in dropsical cases, seems to remove the swelling by its strong cathartic operation, very copious watery discharges being produced by it—The cure is then completed by the use of Tonics.

It is given in doses of thirty or forty drops, three times a day, and thus administered it operates very actively, the cathartic operation continuing several days after its use has been suspended.

It is in other diseases that it is used with more advantage. These are *Gout* and *Rheumatism*. The former disease possesses a considerable connection with the state of the alimentary canal, and it has been very successfully treated by very free and copious evacuations. Besides a strong purgative operation, it possesses considerable *sedative powers* in these diseases, exercising a distinct influence over these forms of specific inflammation. By virtue of this sedative influence, there follows soon after its administration complete relief to the violent pains which existed, and sleep commonly ensues.

In the morning a severe purging takes place of black, foetid matter, with nausea, and a profuse diaphoresis. With the removal of these symptoms, the disease has completely disappeared.

The power of Colchicum to alleviate an attack of gout is admitted by all, but some difference of opinion exists as to the extent of its power, and the propriety of employing it—It alleviates a paroxysm of gout, but that alleviation is *palliative*, not *curative*—It has no power to prevent a recurrence of the attacks. According to Scudamore, it renders the disposition to the disease stronger in the system.

It came into general practice from being thought similar in composition to an empirical medicine called Eau Medicinale, employed eighty years ago by a French officer in the service of the King of France. The composition has never been discovered, but supposed to be a combination of drastic and narcotic substances. Most practitioners concur in the opinion that it is a vinous Tincture of Colchicum.

Dr. Scudamore recommends the following draught :

R. Magnesia, grs. xv. to xx.
Sulphate of Magnesia, ʒi. to ʒii.
Vinegar of Colchicum, ʒi. to ʒii.
Distilled water, as much as is sufficient.

Sweetened with any pleasant syrup.

The dose of the Tincture is 200 drops at bed time—

Or,

xxx. to xl. m. three times a day—in these doses producing very copious watery discharges.

It has been employed in the treatment of *Rheumatism*—in *painful chronic diseases*, as an alterative, and said to have been beneficial—A tincture of the seeds has been employed in Rheumatism, in preference to the wine, and is prepared as follows :

R. Seeds of Colchicum Autumnale, ʒ ii.
Spanish Wine, ℥i.—Digest.

Dose xx. to xxx. drops, increased to i. drachm, two or three times a day.

Thus employed, it has been found beneficial—relieving pain and removing the disease in a short time. The proper period to have recourse to this article is, after the inflammatory symptoms are abated by the use of antiphlogistic remedies. Has been spoken of in very favorable terms by Dr. Armstrong in Rheumatism, and he considers it capable of giving more speedy and decided relief, than any other single remedy he has employed. Its effects are to reduce the action of the heart and arteries, to lessen the animal heat, and abate pain.

The Tincture is also employed as a liniment in the same affection.

It has been recommended in the treatment of *Inflammatory diseases, acute and chronic*—Possesses much power in overcoming Inflammatory action, so as to become a useful auxiliary to the lancet, and in some instances to supersede its use.

The dose of the Tincture is $\frac{3}{4}$ i. night and morning, in the more violent cases, and $\frac{3}{4}$ ss. in those of less severe character, until pain and fever are abated.

Colchicine and Veratrine.—Upon the alkaline principle obtained from the roots of the *Colchicum Autumnale*, and the root of the *Veratrum Album*, and the seeds of the *Veratrum Sabadilla*, a few remarks may be made.

The family of the *Veratrum* or Hellebore tribe, has been long known in the *Materia Medica*, and are remarkable for their extreme activity when applied to the human system, producing, in small doses, violent vomiting and purging, hypercatharsis, with bloody stools and tenesmus.

To the alkaline principle obtained from these plants, the term *Veratrine* has been applied, and to this principle is owing their extreme activity and dangerous character.

Sensible properties—

Uncrystallizable powder.

Taste acrid,

Odor little, but excites sneezing.

Taken internally, in small doses, it excites violent vomiting, purging, and all the effects of the narcotic, acrid poisons.

Applied to the skin in the form of ointment, it causes a sensation of heat and tingling in the part, and somewhat similar sensations in distant parts.

The diseases in which it is employed—In *Neuralgic Affections*, *Tic Douloureux*, *Paralysis*—applied externally in the form of ointment, in the proportion of

A scruple of the salt,

Lard, 1 ounce.

The frictions are to be continued until the heat and tingling caused by the veratrine, have acquired considerable intensity. It fails in the great majority of cases, according to our experience, though in some few, its effects are highly beneficial.

In *Rheumatism*, when of the neuralgic character, it may be employed externally and internally.

In *Dropsy*, applied endermically, it acts as a diuretic, and has afforded relief.

Has been recommended in some affections of the *Heart*.

Taken internally, and applied externally, it has produced a diminution of the frequency and force of the pulsations of the

heart, and in some cases, where it has been more excited than natural, restoration of a regular circulation.

Mode of administering—

Given in pills, or in spirituous tincture.

Pills of Veratrine—

℞. Veratrine, grs. ii.

Powdered Liquorice Root, grs. xii.

Ext. of Hyosciamus, grs. vi.—Mix and make

into xii. pills, one three times a day.

Tincture of Veratrine—

℞. Veratrine, grs. ii.

Sweet Spirits of Nitre, $\frac{3}{4}$ i.—Mix.

The dose is xx. or xxv. m. in a wine-glassful of water, two or three times a day.

Ointment of Veratrine—

℞. Veratrine, ℥ i.

Lard, $\frac{3}{4}$ i.—Mix. The size of a hazel-nut to be rubbed carefully in the morning and evening, or oftener, for from five to six minutes.

Diuretics varied in their action.

INDIGENOUS DIURETICS.

Family *Iridææ*—*Iris Versicolor*, or *Blue Flag*.

Botanical Description—

Root of the plant, thick and creeping.

Leaves ensiform.

Flowers terminal, racemose.

Found in all parts of the U. States, inhabiting swamps and meadows.

The root is the part of the plant employed.

To the taste it is nauseous, followed by a sense of heat and acrimony in the fauces.

The effects dependent upon an acrid juice which exists in the root, and which, when expressed, has been considered a local application in several diseases.

It is possessed of cathartic properties, but it is not likely to be employed for this purpose, as it is apt to occasion a distressing nausea, like sea-sickness, with prostration of strength, etc. It will never be resorted to when others can be obtained.

Its diuretic properties are considerable, and for this purpose was recommended in high terms by the late Dr. McBride, of this city.

It is given in the form of decoction, combined with Button Snake Root, as follows :

R. Take of the Root of the Iris Versicolor ; of the
 Button Snake Root, chipped small, each, $\frac{3}{4}$ i.
 Warm Water, iv. lbs.—boil
 to lb ii., strain—add of
 Powdered Nitrate of Potash, $\frac{3}{4}$ ii.
 Spirits, brandy, or whiskey, $\frac{3}{4}$ ii.

Dose—a wine-glassful three times a day for adults, increasing or diminishing the dose, as upon trial may be found necessary.

It will sometimes at first act as an emetic, but generally as a cathartic or diuretic, particularly the latter, and ought to be given in sufficient doses to operate as freely as the patient's strength can conveniently bear.

This medicine is so quick in its effects, that if it does not succeed in a few days, or in a week, in producing a very perceptible change, it may be discontinued.

The testimony of several practitioners in favor of the utility of this article, and cases cited illustrative of its beneficial operation.

Dr. Bigelow has employed a tincture of the iris, in small doses, with several persons affected with Hydrothorax and Anasarca. It was evidently, he says, of great advantage to a majority of those who took it for a certain time.

Family *Umbelliferae*—*Eryngium Aquaticum*, or *Yuccifolium*—
 Button Snake-Root.

Description of the plant—

Root tuberous and premorse, or bitten off.

Stem three or four feet high.

Leaves twelve to eighteen inches long, one to one and a half inches wide, sword-shaped, fringed with soft spines.

Flowers capitate.

This plant is native of the Southern States.

The root is the part used.

To the taste it is pungent, bitter, and aromatic.

Its medicinal properties are diaphoretic, expectorant, sometimes emetic, and diuretic.

It was much esteemed by the late Dr. McBride, in combination with the preceding article, in the treatment of *dropsical cases*. For formula, vide *Iris Versicolor*.

It has also been employed in the form of Tincture, and may be resorted to advantageously when other means have failed.

Dose Tincture—i. drachm, two or three times a day, increased.

A Tincture of this article is a very popular remedy in some of the stages of Dyspepsia.

Family *Ericineæ*—*Pyrola Umbellata*—Winter Green—Pip-sissewa—Bitter Sweet.

To be found growing in most parts of the United States, in shady woods.

Description of the plant.

Root woody and creeping.

Stems two to four inches high.

Leaves in whorls, evergreen, coriaceous.

Flowers in a small corymb.

All parts of the plant are active.

The taste of the plant is bitter and sweet, combined with a moderate degree of pungency.

It has been considered one of the remedies derived from the Indians, and was employed by them in all disorders which they ascribe to diminished secretion of urine, or which are cured by an increase of that secretion.

Spoken of in high terms by Dr. Summerville, in a paper in the Medico-Chirurgical Transactions, for its diuretic operation.

A case is related by him of its efficacy, in which with an increase of urine, there was an augmentation of strength and improved appetite. Though the case improved much under the use of the article, yet it finally terminated unfavorably—the good effects of the *Pyrola* being however fully manifested.

To remove the fluid, by which dropsy is characterized, is not to cure the disease, of which the fluid preternaturally accumulated is often only a symptom, or remote effect. But since that is often the only relief we can aim at, it must be acknowledged to be a useful article, since it is not only diuretic, but tonic, and free from any deleterious qualities.

Form of administration—A strong infusion of the whole plant, or decoction, prepared as follows:

Roots, stalks and leaves, 1 oz.

Water, 2 pints—boil until it yields a pint of strained liquor. This quantity drank daily.

Also employed in diseases of the urinary organs—in *Ischury* and *Dysury*, and in *Nephritis Calculosa*—possessing properties nearly allied to *Uva Ursi*.

Externally used as a wash in several species of ulcers with success.

Pyrola Maculata—Spotted Winter Green.

Possesses properties similar to the foregoing, being Tonic and Diuretic.

Family *Aloideæ*---*Aletris Farinosa*---Star Grass.

Botanical description---

Root tuberous and perennial.

Leaves radical, expanding, and in consequence of being spread out close to the ground in a radiated manner like a star, the plant has been called Star Grass.

Stem, one to three feet high.

Flowers in a spike.

It grows in most parts of the United States, in damp pine barrens.

Properties---To its diuretic, is added considerable bitterness, and is used in cases of dropsy where tonics are required.

Infused in spirits, it is employed in cases of Intermittent Fevers, attended with dropsical swellings.

It is a popular remedy in Dropsy, administered in the form of a strong infusion, or decoction, of the root and leaves, drank freely, alone, or combined with other remedies. It is not unpleasant and agrees well with the stomach.

I have employed it in some cases---In these its diuretic action has been manifested, but the patients did not recover, owing to the general disease of the habit.

The decoction is prepared as follows:

℞. Root and leaves of the *Aletris Farinosa*, ʒ ss. to ʒ i.

Water, ℥ iss.---simmer to ℥ i.

Dose, as much as the stomach will bear.

Family ---*Achyranthes Repens*---Forty Knot.

Botanical Description---

Root perennial.

Stem creeping, hairy, and villous at the joints.

Leaves sprinkled with hairs, opposite, one leaf generally larger than another.

Grows in dry soils, along fences, &c.

Useful for its diuretic properties in *Ischury* and *Dysury*.

These complaints of frequent occurrence in old persons, and are caused by calculi or gravel, irritating the neck of the bladder, or lodging in the urethra.

Diuretics useful under these circumstances.

Useful also in Dropsy.

Administered in decoction of the whole plant---a handful to a pint and half water, simmered to a pint, and taken freely, aided by the addition of the Saline Diuretics.

There are various articles which are useful in domestic practice. They are the leaves of the

Cynara Scolymus, or *Artichoke*, bruised and steeped in gin, and taken in moderate doses during the day.

The root of the *Cochlearia Amoracia*, or Horse Radish, taken in the form of a strong infusion.

The *Semina Sinapi*, or Mustard Seed, unbruised, and taken in the dose of a tea-spoonful, two or three times a day.

The *Aliaceæ* have been much employed.

The expressed juice of the Garlic and Leek, has been recommended at different times.

The *Apium Petroselinum*, or Parsley—Useful in strangury—In suppression of urine occurring in children—Employed in the form of decoction of the root, alone, or combined with the Nitrate of Potash.

Water Melon Seed tea, prepared in the following manner:

Of the bruised seed, *ʒ* ii.

Boiling water, *℥* i.

Dose, a gill every two hours.

General Principles—

The following principles will give a very good idea of the extent of operation of this class of remedies.

1. Dropsies produced by an obstruction to the circulation, yield to bleeding and gentle diuretics, provided the cause of the obstruction is not incurable. *Digitalis* is useful when this obstacle is hypertrophy of the heart:

2. Dropsies produced by the sympathetic influence of a chronic inflammation are rarely curable, because such inflammation seldom occasions dropsy, till the seat of the inflammation is changed in its structure. The treatment must be directed solely to the chronic inflammation, and the diuretics such as do not irritate the digestive organs.

3. Dropsies which depend upon an accidental defect in the urinary or perspiratory secretions or excretions, will yield to the establishment of these by the proper means. Diuretics and even purgatives will cure them, but we must take care to remove the accompanying vascular plethora, and not to exasperate the phlogosis which may co-exist.

4. Dropsies which result from bad digestion, and assimilation, disappear under the influence of tonics, good air, and good aliments.

5. Dropsies resulting from hæmorrhages, or other evacuations, are cured by tonics, good food, and active diuretics—but we should be cautious in such cases of too suddenly restoring the strength.

In dismissing this class of medicines, we are, by an intimate connection, led to consider the morbid conditions of the

urinary secretion, and to take a brief view of those medicines, the object of which is to correct and remove them.

I shall, therefore, proceed to Lithontriptics and Antilithics.

DIVISION 7.

LITHONTRIPTICS AND ANTILITHICS.

EXPLANATION of these terms---

The consideration of the urinary secretion has enlisted much attention, on account of the very singular products which have been obtained from it, and from its intimate connection with many diseases.

In its healthy state, it consists of many acids and salts, and it is from the predominance of a few, or their varied combination, that calculi are derived.

The several principles are---

1. Phosphoric Acid.
2. Phosphate of Lime.
3. Phosphate of Magnesia.
4. Carbonic Acid.
5. Carbonate of Lime.
6. Uric Acid.
7. Albumen and Gelatine.
8. Urea.
9. Muriate of Soda.
10. Phosphate of Soda and Ammonia.
11. Muriate of Ammonia.

With other salts, according to the state of health, or disease.

Upon a few of these substances offer some remarks—they are

Phosphorus, Uric Acid, Albumen and Gelatine, Urea—various salts.

Such being the nature and composition of urine, it may be supposed that when the quantity of these substances is augmented beyond what can be held in solution, urinary concretions or calculi would be found.

Particular states of the constitution, give rise to the formation of these ingredients, and when carried to excess is called the Lithic Diathesis. This state of the system is probably intimately connected with the deranged condition of the alimentary canal, and the first link in the chain of causes, giving rise to the production of these substances, has its origin in the stomach.

The different substances which enter into the composition of urinary calculi, may be arranged under the following heads:

1. Lithic or Uric Acid.
2. Phosphate of Lime.
3. Ammoniac Magnesian Phosphate.
4. Oxalate of Lime.
5. Cystic Oxyd.

Besides others produced by the combination or admixture of these ingredients.

General appearance of the Calculi in the Bladder.

1. Lithic Calculus—Of a brownish or fawn color, hard and inodorous—soluble in solutions of the alkalies, insoluble in the acids. It is estimated by Dr. Prout, that at least two-thirds of the whole number of calculi originate from this acid.

2. Bone Earth Calculus, or Phosphate of Lime—Of a pale brown color, composed of laminae, which separate readily from each other. It is dissolved by the acids.

3. Triple Calculus, or Ammoniac Magnesian Phosphate—It is of a white color, and less compact than the preceding. It is dissolved in most, if not all the acids.

4. Mulberry Calculus, or Oxalate of Lime—named from its resemblance to the mulberry—readily dissolved in the nitric and muriatic acids.

5. Cystic Oxyd—Of a compact structure, not laminated, appears as a mass confusedly crystallized. Dissolved by acids and alkalies.

6. Fusible Calculus—Whiter and more friable than the preceding—resembles a mass of chalk, and leaves a white dust on the fingers—acquires a large size, moulding itself into the contracted cavity of the bladder. It is dissolved by the sulphuric and muriatic acids.—*Vide Marcet on Calculous Diseases.*

To that state of the constitution which favors the production of these substances, the term Lithic Diathesis has been applied.

It is not known exactly in what it consists, or by what modification of vital chemical actions those changes are produced, which give rise to these concretions.

It is probable that they are intimately connected with the deranged conditions of the alimentary canal, as calculi are always accompanied with indications of impaired digestion, and the first link in the series of actions has its origin in the stomach.

This probable connection is supported by the analogy with

other diseases; these concretions taking place in gout, and the well known connection between the attacks of gout and alimentary derangements.

The importance of the connection of the lithic diathesis with impaired digestion cannot be too often repeated, when it is considered, that in all cases of calculous diseases, it is necessary to pay particular attention to the general state of the patient's health, and along with medicines usually called solvents, to pursue a tonic and invigorating plan with respect to the stomach. The medicines we term antilithic, are more or less tonic in their operation.

Dr. Prout, in his work upon Calculous Diseases, insists very strenuously upon the connection, and has pointed out very fully the symptoms which precede these earthy deposits.

They consist, he says, of great irritability of the system, derangement of the chylopoietic viscera in general, flatulence, costiveness or diarrhœa, the stools being of an unnatural color.

The first object then to be attended to, is to improve the condition of the digestive organs, and to incite them to a more healthy action—Hence the reason of a class of medicines termed Antilithics.

The other class of medicines, or Lithontriptics, are employed during the formation of urinary calculi, or after they are formed.

To produce a beneficial effect, these medicines are taken into the circulation, the urinary secretion becomes impregnated with them, and thus a solvent operation is exerted upon the concretions which exist—That many substances pursue this course, we have already endeavored, on many occasions, fully to set forth, and hope to have established.

But it might be questioned, whether they can be conveyed into the bladder of such strength as to exert a solvent operation upon the concretions which exist.

When these concretions attain any size, all will agree, that but very little benefit can arise from their use, and the impossibility of effecting a solution of them. Indeed, we might almost as soon expect that the stones in the street would be dissolved by the rain, as that these substances can be removed by any course of internal treatment.

Still they may be beneficial in relieving the symptoms, and to such an extent have they been relieved, as to induce the belief that they had been dissolved, though they have been found after death imbedded in cysts, or their surfaces smoothed and polished, rendering it tolerably certain that they had been acted upon by these medicines.

The medicines which are employed for these purposes, are divided into those of an alkaline and those of an acid character.

That by a course of alkaline medicines the urine may be deprived of its acid qualities, I believe there will be no hesitation in admitting, and that it may even become decidedly alkaline, and capable of dissolving lithic acid calculi.

But with regard to the acids, the question is not so easily settled, and particularly as the urine is decidedly an acid fluid.

Mr. Brandt has, however, determined, by experiments, that they are capable of being conveyed into the bladder, and this he has more especially endeavored to ascertain by experiment with the carbonic acid.

But admitting that neither of these substances are taken into the circulation, still as they correct the condition of the digestive organs, from a state of acidity or alkalescence, they thereby modify the action of the kidneys, and, of course, their secretions.

The conclusions then I would support upon the action of Lithontriptic medicines, are as follows:

1. That these medicines are not entitled to be considered as solvents of stone in the bladder.

2. That in small calculi, or gravel, or the forming stage of the disease, the symptoms derived from this cause, with the concretions, have been relieved, and dispersed, by the proper and judicious use of alkaline or acid medicines.

3. That in advanced stages of the disease, or after stones exist in the bladder, the symptoms of irritation produced by them, have been so much relieved by the use of Lithontriptic medicines, that the patient's life has been rendered easy and comfortable, to such a degree, by changes induced from chemical actions upon the surface of the stone, as to excite a belief that they had been dissolved, though they have been discovered in the bladder after death.

4. That even supposing these medicines incapable of exerting any action upon the urinary organs, yet, by correcting the morbid condition of the alimentary canal, either from a state of acidity or alkalescence, that they thereby disturb those affinities, which, in the subsequent processes of assimilation and secretion, give rise to calculous affections.

The last, and a most important question, remains to be considered. How are we to discover the nature of the calculous secretion, so as to direct a suitable remedy? This must be considered a question of primary importance, for without some principles to guide us, our practice is but empiricism, and failing in our attempts to afford relief, we

decide that all is conjecture and uncertainty, that the practice is based on an unstable basis, when in fact the fault is not in the medicine, but in our insufficient knowledge of its application.

In the inquiry, how are we to be directed in the employment of a suitable remedy?

For this purpose we must examine the sediment which is deposited by the recent urine, or we must analyze the small calculi which are passed with the urine.

Here is presented a specimen of calculi passed from a patient whom we were called to visit, for what was called a gravel complaint. It was necessary to know the composition of these concretions before a proper remedy could be administered. We had them analyzed, and determined that they were lithic or uric acid. The patient was placed upon the use of alkaline medicines, and in a few weeks they were entirely dissolved, the urine was voided free of them, and has so continued, though several months have elapsed since he was first seen. To show the importance of the principle, suppose that we had proceeded to administer acids, the evil would, undoubtedly, have been increased.

As a general rule, the acid sediment is of a red color, and this is a circumstance which may aid us in the investigation. When this sediment makes its appearance in urine upon cooling, and when particles are discharged with the last drops, it is an evidence that the acid qualities of the urine are in excess, and under these circumstances the alkalies are the proper remedies.

We are not to use them incautiously, for by their long continued use, we may not only deprive the urine of its acid qualities, but render it decidedly alkaline---and thus, in removing a deposit of an acid character, we may form one of an alkaline.

But urine which deposits a sediment of a rose, red, or brick dust color, is not always an evidence of a disposition to calculus---It is often a symptom of other organic derangements---It is often an evidence of impaired digestion, and it not unfrequently occurs where there is hepatic, or splenic disorders---So that you will be on your guard, and not pronounce every case where this occurrence manifests itself, as of a calculous character. It is only when taken in connection with other symptoms, as frequent micturition, pain in the region of the bladder, bloody urine, with the discharge of small calculi, as we have shown you, that we determine upon the presence of calculus.

It might be some satisfaction to know, and it may give to our medical treatment more simplicity to be informed, that,

according to the opinion of Dr. Prout, two thirds of the whole number of calculi originate from lithic acid.

The next deposits most frequent, are of an *Alkaline* character---They consist of the Phosphate of Lime, and the Ammoniac Magnesian Phosphate.

This sediment is usually of a white color, and whenever it appears, it is an evidence that the acid character of the urine, by which it is held in solution, is diminished. When, therefore, this white sand is noticed in connection with other symptoms, which are its invariably following meals, and its being observed in the urine, not merely as a deposit upon cooling, but at the time the last drops are voided, we will find that the internal use of acids will, in most cases, diminish or remove it.

You may, by an experiment, cause this deposit to take place, by adding a solution of Potash or Soda to recent urine, when it will be thrown down.

Hence, therefore, the Alkalies, as well as the acids, should be used with caution, as by too long use of them, the urine may be so changed, that the phosphates may be formed.

It was at one time considered that the alkalies should only be employed in their caustic or pure state, but they cannot reach the bladder in a caustic state, combining, as they would, with the carbonic and other acids in their course. Experience has determined that the carbonates are equally valuable, and less likely to *disagree with the stomach*.

The alkalies, even though they do not act as solvents, are often useful by allaying irritation of the bladder, promoting the flow of urine, and thus mitigating symptoms.

ANTILITHICS.

DEFINITION.—Under this head are comprised Tonics and Astringents. From what I have said of the disordered conditions of the digestive organs in calculous cases, it would naturally be inferred, that our first object would be to correct their derangements. For whatever will improve their powers of action, will prevent the development of those principles which lay the foundation of, and are very intimately connected with the production of urinary concretions. For any excess of acidity, or alkalescence, in the *primæ viæ*, may be considered as exciting causes of similar conditions in the urinary secretions.

Tonics, and whatever promotes digestion, may be considered as valuable resources.

Astringents are also useful as tonics, but, in addition, they seem to have some power to relieve the symptoms, which attend the presence of calculus in the urinary passages. They have therefore, been employed, almost at all times, and by most eminent physicians. That the symptoms may be relieved, without the stone being removed, has been sufficiently proved, and among the medicines which operate in this manner, astringents may be mentioned.

Uva Ursi, which has been so long celebrated, seems to operate in these cases by virtue of these principles.

Dr. Cullen further supposes, that it is useful by absorbing acid in the stomach, but this operation is very improbable.

Astringents are, therefore, useful by their tonic impression—they are also useful by lessening the sensibility of the bladder, and probably lessen the acrimony of the urine.

Of the Astringents employed as Antilithics—

Family *Ericaceæ*—*Arbutus Uva Ursi*—Bear Berry.

Description of the plant—

It is an evergreen creeping plant.

Stems procumbent, branches trailing.

Leaves alternate, oval, firm, deep green upper surface, paler underneath.

Flowers flesh color, in small clusters at the end of the branches.

Berries red.

Very common in many parts of Europe, and in the Northern parts of the United States.

Sensible properties—

Considerable bitterness and astringency, abounding in a large proportion of Tannin.

They yield their active principles to water.

The leaves of this plant have been long known in the *Materia Medica*, and were employed in diseases requiring astringents. They had declined very much in practice, until their use was revived by DeHaen, in the middle of the last century, as a useful and efficacious medicine in the treatment of *nephritic* and *calculous* affections. This physician, who practiced medicine in Vienna, and who had the superintendence of a very large hospital, speaks of it in very high terms, as valuable in relieving the symptoms of calculous—so much so, that under its use the patients continued free from pain or inconvenience in making water, although the catheter showed that the calculus still continued—that others who seemed to be cured, relapsed on leaving off the medicine, and were again relieved upon repeating the use of it, while others obtained only temporary and precarious relief.

The efficacy of this article in nephritic and calculous cases has been variously represented by different writers on the *Materia Medica*. By some, it has been represented as merely possessed of diuretic properties, and having no effect in relieving calculous, or other diseases of the bladder.

The weight of authority is decidedly in its favor—The testimony of the late Dr. Wistar. From the testimony of various individuals, there is no doubt that it proves a palliative for calculous symptoms in many cases, and prevents their appearance.

In *Nephritic* affections a valuable medicine, particularly in *N. Podagrica*, or depending upon gout.

Its employment preceded by purgative and depleting medicines, which are to be repeated at proper intervals.

In *Cystitis*, or Inflammation of the bladder, in *Catarrhus Vesicæ*, in suppurations of long continuance in the kidneys, bladder, and its appendages, this medicine will be found useful.

In *Gonorrhœa* and *Gleets* of long standing, useful in the form of decoction.

Many other applications of this article we shall not detail. Forms of administration—Infusion and Decoction.

℞. Leaves of *Uva Ursi*, bruised, ʒ ss.

Water, ʒ xvi.—Boil ten minutes.

Dose, ʒ i. to ʒ ii. every hour or two.

Powder, ʒ i. to ʒ ii., three or four times a day.

Family *Urticeæ*—*Humulus Lupulus*, or *Hop*.

The Hop Vine a native of most countries of Europe, also indigenous to America.

The strobiles or flowers are employed.

Odor, heavy and aromatic.

Taste, strong bitter—tonic.

A useful ingredient in malt liquors, imparting an agreeable flavor to them—and to this article we attribute the narcotic or drowsy effects produced by their use.

Lupuline is obtained in the form of small, yellow grains, pulverulent, of an aromatic smell and bitter taste. It covers the base of the scales of the hop, and is separated from them by a fine sieve.

Upon this article we need not dwell long—its medicinal powers overrated—allowed to be a slight narcotic bitter.

Useful in the form of infusion, to relieve an attack of *Nephritis*, by removing pain and quieting irritation. It is well adapted to this disease, possessing both anodyne and diuretic properties. It has been very usefully employed,

administered in the form of infusion made strong, or hop tea prepared as follows :

R. Hops, $\frac{3}{4}$ ss.
Boiling water, $\frac{1}{2}$ li.—m.—strain.

Dose $\frac{3}{4}$ i. to $\frac{3}{4}$ ii. three or four times a day.

Tincture—dose, $\frac{3}{4}$ i. to $\frac{3}{4}$ iv.

Family *Apiaceæ*—*Daucus Carota*—Wild Carrot.

This plant grows wild in many parts of the United States, and in the neighborhood of this city. It bears considerable resemblance to the cultivated, only possessed of more active properties, being much more acrimonious and bitter.

In many of the urinary diseases, this plant is often a very useful remedy. It is given in the form of infusion of the roots and seeds, in the quantity of a pint a day.

Family *Solaneeæ*—*Capsicum Indicum*, or *Red Pepper*.

Of this article I shall speak more particularly under the head of Stimulants. From its action upon the digestive organs, in improving their functions, and removing many of the unpleasant symptoms attendant upon imperfect digestion, we think it may with great propriety be placed among the Antilithics. We have no particular authority in making this arrangement, but our experience in a single instance.

It was employed by an elderly gentleman, upwards of 70 years of age, who had for several years been distressed with gravel and small calculi. He had tried many remedies for his relief, and had consulted the best authorities upon his disease. Finding his constitution becoming every day more impaired by a painful and protracted disease, with feeling of sinking and great gastric derangements, he was induced, in order to improve his appetite, and promote the function of digestion, to make trial of this article.

He employed it in the form of a salad, cutting up five or six peppers each day, and mixing them with the food eaten. The effect of this treatment, by restoring his appetite, has been to restore his strength, and while promoting the functions of the bowels, giving to them greater regularity, it exerts also a diuretic operation. He also thinks that some change has taken place in the *structure* of the calculi, that they are softer, more readily broken down by the muscular action of the urethra, and expelled in a more pulverulent form.

The occurrences of this case, and the beneficial effects produced from *Capsicum*, have contributed very much to strengthen the opinions I had formed of the Antilithic powers of medicine.

Family *Liliaceae*—*Allium Sativum*—Garlic.

Owes its Antilitic properties to its stimulant and stomachic operation in enfeebled digestion. From its stimulus being powerful and diffusible, it is used under the same circumstances, and same advantage, as *Capsicum*.

The dose is half a garlic, or half a table-spoonful of the expressed juice.

The *Leek* is said to be equally useful, and may be administered in the same way.

Family *Rutaceae*—*Diosma Crenata*—*Barosma Crenulata*, *Buchu*, or *Bucku*.

The leaves of several species of *Diosma* are known in the shops as *Buchu*. They are intermixed with stalks and leaves.

They are smooth, shining, serrated.

Their consistence coriaceous.

Their color pale or yellowish green.

They are oval, oblong, or obovate.

Might be taken for *Senna*, differs only in color.

Properties—*Aromatic*, *Stimulant* and *Tonic*.

Taken in moderate doses, it promotes the *appetite*, *relieves nausea* and *flatulence*, and acts as a *diuretic* and *diaphoretic*.

Buchu has principally been employed in *chronic maladies of the urino-genital organs*.

Though the plant has been long known, it was not employed in medicine until 1823, Dr. McDowell in that year giving a most favorable account of its good effects. It has since been employed by a considerable number of practitioners, and its remedial powers fairly tried.

It seems to be principally adapted to chronic cases, attended with copious secretion.

In *Chronic Inflammation of the mucous membrane of the bladder* attended with copious discharge of mucous, it frequently checks the secretion, and diminishes the irritable condition of the bladder, thereby enabling the patient to retain his urine for a longer period—but it has also failed to give relief.

In irritable conditions of the *urethra*, and in *gleet*, it has proved serviceable. In this last disease, worthy the attention of medical men.

In *Lithiasis*, attended with increased secretion of uric acid, it has been given with considerable benefit by Dr. Carter, and others, and has appeared to check the formation of this acid. It should be given in these cases in combination with alkalies.

Administration—In Powder, Tincture and Infusion.

Powder--- \mathfrak{D} i. to \mathfrak{z} ss.

Infusion---℞ Diosma C., \mathfrak{z} i. ; water, ℥ i.---macerate for two hours in a lightly covered vessel---strain.

Dose--- \mathfrak{z} i. to \mathfrak{z} ii.

Tincture--- \mathfrak{z} i. to \mathfrak{z} iv.

Of Diet as an Antilithic.

The secretions being materially influenced by the ingesta, the remarks on this subject cannot be considered irrelevant.

In experiments upon birds, it has been ascertained by Dr. Wollaston, that the proportion of Uric Acid voided with their dung, would be much influenced by the diet upon which they were fed--That where they fed upon grass wholly, the proportion of Uric Acid was extremely small--That when to the vegetable, a portion of animal food was added, the quantity of Uric Acid was greatly increased---That when feeding wholly upon flesh, the proportion was manifestly greater, and seemed to be little more than Uric Acid.

It seems, consequently, deserving of inquiry, what changes might be produced in the urine of any animal by such alterations of diet as its constitution would permit--for, as far as any inference could be drawn from the above experiments, it would seem that persons subject to calculi, consisting of Uric Acid, as well as gouty persons, in whom there is always an excess of the same matter, have much reason to prefer a vegetable diet.

The *preceding observations* will be of much use in *determining our practice*, as to the propriety of an animal or vegetable diet for those laboring under an excess of Uric Acid. The experiments of Dr. Wollaston are so ingenious and satisfactory, that it would be hardly admissible to doubt what has been so ably proved. Independent of these experiments, a week's abstinence from animal food has been known to relieve a fit of gravel of the Uric Acid character, when alkalies were of little avail, and in other cases, the same plan has been successfully adopted.

These observations of Dr. Wollaston, of the connection of Uric Acid concretions with the nature of the ingesta, have been confirmed by others. Magendie has repeated these experiments on dogs, and found that by a vegetable diet, their urine could be made to contain neither Uric Acid, nor the Phosphates, that it became rather alkaline than acid.

Andral, in his Pathological Anatomy, notices the changes the blood undergoes by the use of a diet containing much azote, or nitrogen, of which nature is animal food.

Not only does the blood acquire an additional quantity of fibrine, (and hence these persons are much disposed to in-

flammatory diseases,) but under the same circumstances, a superabundant secretion of Uric Acid takes place, and gives rise to the complaint called gravel. Not only does it exist in a greater quantity in the urine, but it occurs in other parts of the system. It forms around the joints, is found in masses between the fasciculi of several muscles, in the subcutaneous cellular tissue, and even in the spongy extremities of the bones.

The best way to change this superabundant secretion, is to change the diet of the person affected, and to give him food containing as little azote as possible. He should, therefore, avoid as much as possible animal food.

As a healthy state of the digestive organs is what we should have in view, it may be found detrimental to restrain persons affected with Calculus of the Uric Acid character, from taking a due proportion of animal, as well as vegetable diet. They should, particularly, abstain from all things which manifestly disagree with them---such as heavy unfermented bread, hard boiled and fat puddings, salted meats, acescent fruits, and soups of every kind. In general, also malt liquors and wines, particularly of an acescent quality, will be injurious. Errors, therefore, in these respects, should be guarded against.

But it is not only important that those articles should be avoided which are unwholesome---regard should be had to the quantity of those which are wholesome. Errors in this respect are probably more injurious than in quality---at least they produce the same effects.

When the sediment consists of *white sand*, or the *phosphates*, we should adopt a general *acid system* of diet, as far as may be compatible with the state and condition of the alimentary canal---to abstain from soda water and all alkalies---to take weak lemonade, and an occasional glass of cider, as ordinary drink at meals; and if accustomed to wine, to prefer Champagne and Claret, to Madeira and Port, and to eat salads, and acid fruits.

Exercise is of great importance in all gravelly complaints, and flannel should be worn constantly. Sailors and other persons accustomed to constant laborious exercise in the open air, are very rarely affected with these complaints. Magendie has given a striking example of the advantages to be derived from exercise and abstinence, and the mischievous effects of luxury, in the case of a merchant in one of the Hansiatic towns.

PARTICULAR LITHONTRIPTICS.

THE consideration of particular articles will correspond with the general views taken. We will consider first the solvents of the white sand, or the Phosphates of Lime, and of Ammonia and Magnesia.

These comprise all the acids.

Carbonic Acid—First employed by Dr. Saunders, as a solvent for the human calculus in 1775, and afterwards by Dr. Percival, who speaks in the highest terms of it as a medicine, grateful to the palate, strengthening to the stomach, and salutary to the whole system—Has advantages over lime water, and the alkalies.

Advantages of Carbonic Acid—May be taken in union with water in the largest quantity without satiety or inconvenience—it requires no restrictions in diet, and its medicinal virtues will be undiminished in the stomach or bowels.

It has been a question whether it does enter the circulation, so as to reach the bladder in an uncombined state—Dr. Priestly decidedly of this opinion, having expelled it by means of heat from fresh made urine.

Mode of administration—Impregnating water with this gas by means of a Nooth's apparatus, or procured from the dealers in artificial mineral waters. It may be drunk freely.

Mineral Acids—Comprehending the Nitric Sulphuric, and Muriatic or Hydrochloric. They all agree in their general properties.

Nitric Acid is most apt to disagree with the stomach, producing symptoms of flatulency and indigestion, though cases may be cited of its tonic operation.

The Muriatic Acid has been most celebrated in the treatment of gravel complaints. Mr. Copland has employed it in persons who were distressed with a frequent desire to make water, voiding it with pain, and in small quantities—accompanied with obtuse pain in the region of the bladder. Upon giving it in doses of xxx. m. of the diluted acid, three times a day, a considerable discharge of sand and gravel with the urine has taken place, followed by relief of all the symptoms.

Muriatic Acid is most apt to agree with the stomach, but not so with the bowels, which are most commonly relaxed under its use. This circumstance often recommends it, for costiveness very frequently attends the state of the body which favors the formation of the white sand—hence aperient medicines often alone useful—Cases of its efficacy related.

Muriatic Acid employed in some forms of *Dyspepsia*, and its employment recommended by being a constituent of healthy gastric juice, and when mixed with mucus, has a solvent or digestive power in the case of various articles of food.

The *Sulphuric Acid* most properly considered tonic, and admits of being persevered in a longer time.

It might be supposed, from the disordered condition of the first passages, that these acids would disagree in most cases. The contrary is the case. This circumstance points out an important distinction between vegetable and mineral acids.

When the use of the acids produces much irritation, they should be intermitted, or opium employed to allay the pain.

Dose of the acids, from v. to xxx. m., three times a day, in plain or barley water.

Vegetable acids—

The Mineral Acids disagreeing with children, we have recourse to the *vegetable*. Children are equally liable with adults to an increased secretion of the Phosphates, and in whom prompt treatment is required to prevent the formation of stone.

Tartaric acid may be used—dose v. to xx. grs. or the Bi-Tartrate of Potash—dose xx. to xl. grs. This last often operates on the bowels, which renders it beneficial.

Remedies for the Uric Acid Concretions.

They are distinguished by their *red* color, and occur when the acids are in excess.

The proper remedies are alkalies.

The efficacy of the alkalies and alkaline earths being sufficiently proved, the question to be considered is, the kind to be preferred, and the manner of using them.

Carbonates of Potash and Soda.—They were directed to be employed in their caustic or pure state, but in this state they are not more active than the Carbonates, and are more likely to disagree with the stomach.

Soda is preferred to Potash, as being more mild, and less likely to disagree, and Fourcroy states as his opinion, that it is more eligible for medicinal purposes than Potash, on account of its analogy with animal substances which always contain it.

Potash has dispelled symptoms which had withstood the operation of the former. They should both be retained and employed. Sir G. Blane and Mr. Brand state that they had

obtained beneficial effects from the use of Potash, when Soda had failed to give any relief.

The explanation given for the relief afforded by Potash.

Administration of Soda.—In the form of the well-known artificial beverage of Soda Water. The alkali being saturated with Carbonic Acid Gas, looses its caustic and disagreeable taste. In the quantity of a tumbler-ful, containing 3 ss. to 3 i. of the carbonated alkali, it makes a pleasant beverage, in which the offensive effects of the alkali are obviated.

Or,

R. Carbonate of Potash or Soda, 3 ii.
Water, ℥xxiv.

And this impregnated with fixed air by a Nooth's apparatus—of this from xii. to xxiv. ozs. may be taken daily.

Or,

The ordinary Soda Powders may be taken.

Administration of Potash.—It may be given in doses of xv. to xxx. grs. at a dose, night and morning. It sometimes produces much gastric distress, which may be diminished by uniting with it mucilage of Gum Arabic, or giving it in thin broth—Cannot be given long without producing uneasy symptoms in the stomach. To obviate this, it is given also supersaturated with Carbonic Acid Gas.

Or,

The alkalies may be freed from the water of crystallization, and made into pills. The quantity taken being from 3 ss. to 3 i. daily.

Cases related exhibiting the power of these medicines to prevent, or diminish, the secretion of calculous matter.

The alkalies have also been much used in the state of Soap—but in this state they are often offensive to the stomach, or impair its powers, and lay the foundation of Dyspepsia.

Dose, 3 ss. to 3 i. in pills daily.

Aqua Calcis, or Lime Water—Has been long known for its powers of lessening pain, and removing the symptoms of calculous disorders. To be effectual, it must be given in large quantity—not less than a quart or three pints daily.

It is an inconvenient and ineffective form of alkaline medicine, and not entitled to much consideration.

Magnesia.—The use of this article was suggested by Mr. Hume, upon the supposition that calculous complaints could be prevented by introducing into the stomach such substances as are capable of preventing the formation of Uric Acid,

and that this mode of treatment would have many advantages over the usual method, which consists in dissolving it after it was formed.

Efficacious in diminishing the quantity of Uric Acid in the urine, and sometimes effectual after the alkalies have failed.

Also of great value where the alkaline remedies are indicated, but in which Potash and Soda have created gastric symptoms.

Magnesia may be used as calcined or sub-carbonate—the latter generally preferable, except where flatulence exists, when the calcined should be used.

The dose xv. to xx. grs., several times a day, in any convenient vehicle. Care should be taken that an accumulation should not take place, by the occasional administration of a mild cathartic.

Magnesia, a valuable addition to the medical treatment of calculous diseases. Being less offensive to the stomach, yet capable of removing acidity from the digestive organs, will be found preferable to the other alkalies, which injure the tone of the stomach by their long-continued use.

The utility of this article illustrates the pathology of these diseases, such as has been endeavored to be pointed out.

Its operation being exerted upon the stomach and alimentary canal, correcting the morbid condition of their contents, points out the connection of urinary deposits with their deranged states, and we may say their dependence upon the condition of these organs. Since, in the results which follow the administration of this article, we see, that as acidity of the first passages is corrected, the red sediment of the urine is diminished, and ultimately removed—thus proving, that there is a very intimate connection between the secretions of the stomach, and those of the kidneys.

Family *Menispermaceæ*—*Cissampelos Pareira*---Pareira Brava, Velvet Leaf, Wild Vine---Gravel Root.

Natural History---

Root woody and branching.

Stem, round, smooth.

Leaves aristate at the point, covered underneath with silky pubescence, hence called velvet leaf, but not truly downy.

Native of the West Indies and Spanish Main.

The root, the part employed, was originally introduced into medicine as a Lithontriptic. Its powers in this way were at one time highly vaunted, and Helvetius went so far as to assert, that calculi of the size of an olive had disappeared under its use, and that the operation of Lithotomy was no longer necessary.

It is now employed almost solely in discharges from the *urino-genital mucous membrane*.

It has been used in *Gonorrhœa*, *Leucorrhœa*, and Chronic Inflammation of the *bladder*. In the latter disease, Sir B. Brodie states that he has seen more good from this root, than from *Uva Ursi*.

It is given in the form of strong decoction, to which may be added a little of the Tincture of *Hyosciamus*, as follows :

R. Root of *C. Pareira*, \mathfrak{z} i.

Boiling Water, ℥i.---digest.---strain.

Dose, \mathfrak{z} i. to \mathfrak{z} ii., three or four times a day.

Of the Powder, \mathfrak{z} ss. to \mathfrak{z} i.

The last of the means which have been recommended for the solution of calculi is the *injection* of various substances into the bladder. The acids and alkalies sufficiently diluted have been employed for this purpose---But it is tedious and ineligible, and has yielded to lithotritry and lithotomy.

The *gastric juice* of animals has also been employed.

The *injection of Castor Oil* into the bladder has great effect in relieving the sufferings occasioned by stone in the bladder, and as the pain and irritation arising from this cause are often very great, I have, says Dr. Morris, much pleasure in recommending it to the notice of those who are laboring under so severe an affliction, hoping that they may find it of inestimable advantage.

DIVISION 8.

Medicines which promote the Catamenial Secretion.

EMMENAGOGUES.

GENERAL remarks upon the Catamenia---Its nature and importance---Its suppression connected with several forms of chronic disease, and an inquiry into the condition of the uterine secretions, should never be overlooked.

Medical men being aware of this fact, have applied themselves with diligence to promote this secretion---but from frequent failures of their endeavors, doubts have arisen as to the beneficial effects of medicines in these cases. The *precariousness* of this class of medicines, those who have had experience must allow. Still we are decidedly of the impression, that we are possessed of medicines which exert an action upon the secretions of the uterus, and if failure attends their

administration, it proceeds from the incorrect ideas which are entertained of the nature of the Catamenia, and our inattention to the state of the system.

The fact is, the practice in these cases is often in a great degree empirical, and the want of success proceeds from neglect of those circumstances which should influence their operation. Alibert observes, that there are few diseases which depend upon such a variety of causes, or are connected with such different conditions of the general system, as obstructed catamenia. Hence, its remedies are so various, and often of such contrary characters, and hence, too, the great uncertainty of our remedial measures in such cases. Many of us may have observed the great facility with which the emmenagogue operation of a particular agent has been produced, after the system has been subjected to a process of preparation, when the same substance has proved perfectly futile without it.

In some cases, the suppression of the secretion is produced by the general relaxation and debility of the system, and hence, our best remedies will be such as will invigorate and restore it. Here exercise, tonics, the cold bath, and a nourishing diet, produce the best effects.

At other times, an opposite condition of the system exists, connected with a considerable degree of rigidity of fibre, and a high degree of arterial action. In these cases, a contrary plan is to be pursued, and the best emmenagogues will be venesection, and other depleting remedies.

In prescribing, therefore, for a suppression of the catamenia, it is of the utmost importance to attend to the general state of the system, as without it we shall frequently be baffled in our attempts, and our medicines may often increase the disease they were designed to cure.

We shall divide the medicines of this class into such as increase, and such as diminish, arterial action; and before commencing to speak of the individual articles, we cannot but state, that we are possessed of remedies, adapted to the varying condition of the system, provided we use judgment in their selection.

Such as increase Arterial Action.

STIMULATING EMMENAGOGUES.

UNDER this division is comprehended those articles which Stimulate the arterial system, and those which give Tone to the system generally.

Family *Polygalæ*—*Polygala Seneka*—Seneka Snake Root.

The Natural History and properties of this article already described.

The acrid qualities are owing to the presence of an acid called Polygalic.

The testimony in favor of its emmenagogue operation is very considerable, and to Dr. Hartshorn, of Philadelphia, are we indebted for its application to the deranged condition of the secretions of the uterus.

He employed it in twenty-three cases of Amenorrhea. In thirteen, the menses appeared during the use of the decoction—In two, the health improved, but the catamenia did not return. In three, no advantage whatever was derived from its use. In the remaining five cases, he was unable to ascertain the event. In the last case in which it was employed, chlorotic symptoms supervened to those of the suppression, yet by perseverance in the use of the decoction for two weeks, the menses then appeared, and the patient has since enjoyed much better health.

The testimony of Dr. Chapman can also be adduced in favor of the beneficial operation of this article, and he has related several cases illustrative of the particular state and circumstances of this deranged function, to which it is best adapted.

These cases are highly interesting, and the attention is invited to them.

The particular inferences to be drawn from these cases are highly important—showing the connection between the state of intellectual derangement and the uterine organs. They open a new view in the treatment of mania in females, and conclusively prove that amenorrhœa, if not a cause of insanity, at least, is intimately concerned in its production.

They furnish an important fact, that in some cases of mania occurring in females, a cure may be effected, when other means fail, by simply producing a return of the catamenia.

To the many causes concerned in the production of Amenorrhœa, another may be enumerated. This is the production of a *membranous substance*, formed within the cavity of the uterus. It was first noticed by Morgagni, and afterwards by Denman.

It is produced by the vessels which pour out the menstrual secretion.

The appearance of this substance—It is a membranous lining of the uterus, retaining the figure of the inside of that organ—In consistence resembling firmly impacted mucous—in color similar to the decidua, being twice or three times as thick.

Its existence produces much embarrassment in the treatment of amenorrhœa. It exists in protracted and long continued cases.

The Seneka not only adapted to all the forms of amenorrhœa, but particularly to those cases where this deciduous membrane exists. It effects its expulsion by a forcible and specific impression.

The habits to which it is adapted, are those of a feeble and slender make, and of a temperament apparently cold and leuco-phlegmatic.

Forms of administration—In decoction as follows :

℞. Seneka Root, bruised, \bar{z} i.

Water,

℥ii.—boil to ℥i.

Dose, \bar{z} ss. to \bar{z} i., several times a day—In larger doses when the menstrual effort is about to be made.

In the intervals, it should be discontinued for a week or two.

Should it produce nausea, which it is apt to do, it may be prepared with the addition of an aromatic, such as orange peel, or cinnamon.

In considering the general properties of the Seneka, little doubt exists, that it produces its good effects by promoting the various secretory discharges—the uterine, with the various other secretions.

In using this article, always commence at least two weeks before the period the patient usually menstruates.

Family *Pinaceæ*—*Juniperus Sabina*, or *Savin*.

It is an evergreen tree, a native of the South of Europe.

The leaves and tops employed.

Sensible properties—

Smell, moderately strong.

Taste, hot, bitterish, acrid.

Allied to Seneka in its properties, being a warm, powerful, and diffusible stimulus, increasing the secretions, and determining with peculiar force to the uterus.

From its strong determination to the uterus, it has been employed for the purpose of procuring *abortion*, and has been remarked as producing *hemorrhage* from the uterus.

It was first employed by Dr. Home, of Edinburgh, who seems to have had much success with this article. In five cases of *amenorrhœa*, which occurred at the Royal Infirmary, at Edinburgh, four were cured with Savin, administered in doses of \bar{z} i. to \bar{z} i., twice a day.

The constitutions to which it is adapted are the weak and relaxed—it is improper in plethoric habits, before previous bleeding has been practised.

It has been recommended by Burns in cases occurring in similar states of the constitution.

Savin is not much used internally—but in cases of amenorrhœa depending on, or accompanied by, a torpid condition, or deficient action in the uterine vessels, it may be given as an active uterine stimulant. In such cases, it proves an efficient remedy, and when properly administered, no ill effects will arise from its employment.

Forms of administration---

Powder, but not an eligible form. The reason why, is that it is not readily pulverized without previously drying it, and as the active part is an essential oil, very readily volatilized by heat, its activity is often impaired by this process.

Dose, \mathfrak{z} i. to \mathfrak{z} ii., three or four times a day.

Infusion prepared as follows :

R. Leaves of Savin, \mathfrak{z} i. to \mathfrak{z} ii.

Boiling Water, \mathfrak{lbi} .---simmer a short time, strain, add---Syrup, \mathfrak{z} ii. Dose, \mathfrak{z} i. to \mathfrak{z} ii., every two or three hours.

Besides these forms of administering Savin, the essential oil has been highly recommended, given as follows :

R. Essential Oil of Savin, vi. to x. or xii. m., taken on a lump of sugar, two or three times a day.

The oil in large doses occasions vomiting and purging, and other symptoms of gastro-intestinal irritation---it increases the circulation, irritates the kidneys, yet more obviously the uterus---abortion follows in some cases, in others hæmorrhage from the uterus.

In *Chronic Rheumatism*, with a languid circulation of the extreme vessels, it is spoken of in very high terms by Dr. Chapman, in his *Therapeutics*.

External employment---

The leaves are used as an escharotic, either in powder or infusion. Equal parts of the powder, and acetate of copper, or verdigris, form a good application for venereal warts, and other excrescences, and the infusion is used as a wash for foul ulcers, for tinea capitis, for warts, psora, etc.

The Savin ointment is found effectual to dress blistered surfaces, to keep up the discharge, as follows :

R. Leaves of Savin, bruised, \mathfrak{z} ii.

Wax, \mathfrak{z} i.

Lard, \mathfrak{z} iv.

Melt, mix the leaves, strain through a linen cloth.

Same Family—*Juniperus Virginiana*, or *Red Cedar*.

The largest of the Junipers, and found in all parts of the United States, but growing most luxuriantly in Virginia. It

bears a considerable resemblance to Savin, insomuch that a botanical distinction is not easily drawn. In their sensible and medicinal properties, they are nearly allied. Like Savin, it is stimulant, diuretic, and emmenagogue, and used in the diseases in which that article is recommended, as a substitute for Savin.

Used in the formation of *cerates*, for keeping up the discharge from blistered surfaces, by boiling the fresh leaves with twice their weight of lard, to which a little wax is added.

Tincture of Cantharides.—An active article, and employed in suppression of the catamenia, connected with atony of the uterus. Its emmenagogue operation not the result of general increase of action, but of particular local determinations of this article, acting upon the abdominal, and more especially the pelvic viscera. The effects are exhibited in the production of strangury, and are not confined to the bladder, but extended to the viscera in its neighborhood—to the rectum, and to the uterus, and under its influence the uterus is often excited to pour out the menstrual secretion. The bowels, we know, are much affected by the production of strangury, and patients have been heard to complain, that the passage of the *fæces* through the rectum excited a sensation of heat or burning, similar to that which attends the voiding of urine. If such be the strength of the impression produced by the presence of strangury upon the alimentary canal, the uterus, we may suppose, is likely to partake of an equal inflammatory action.

Several cases related in which this article was employed.

In one case, from the suppression which occurred, a very unfavorable change took place in the health of the patient—symptoms of pulmonary disease being induced, with hæmoptysis, pain in the chest, a weak quick pulse, with nocturnal chills and perspiration, the family being predisposed to Phthisis.

Several remedies were employed without much benefit.

She was then placed upon the use of the Tincture of Cantharides, in the dose of twenty-five drops, three times a day. On the second day, strangury was produced—and on the third, the menses appeared.

With the return of the catamenia, all the unfavorable symptoms disappeared, and, in due time, she recovered her health.

Other cases of the beneficial operation of this article cited.

In administering this article, regard should had to the state of the constitution, it being adapted to cases of long contin-

uance and debility. It should be given in doses of xx. to xxv. drops three times a day, and carried to the extent of producing stranguary, and when carried to this extent, the secretion will most frequently be excited.

Connection of several chronic forms of disease with the suppression of the Catamenia exhibited—as Mania, Nymphomania, Epilepsy, Phthisis.

We have alluded to the connection between chronic derangements and the suppression of the catamenia. The several cases we have related, have been illustrative of the dependence of mania, nymphomania, epilepsy, and phthisis, on that cause. The connection of the first diseases with the state of the menstrual secretion is admitted; but with phthisis, the relation has been overlooked, or not acknowledged. The present occasion is too favorable a one, not to state to you, that, in our opinion, amenorrhœa is often the cause of consumption. The case cited, confirms this opinion; and, at all events, it is an interesting subject of inquiry, whether the pulmonary disease is not occasioned by the suppression, and whether, in certain cases, amenorrhœa does not prove a cause of phthisis in the predisposed? Our own views are favorable to this connection, and in the treatment of cases of phthisis, as well as some other complaints, we would suggest directing the attention to the suppression, as forming the chief disease, upon the removal of which all the other symptoms will vanish, provided the secretion can be restored before the lungs have sustained such organic injuries as to render them incapable of continuing duly to perform their proper functions. Certain it is, that no occurrence is more common, than the attack of cough, pain in the side, difficulty of breathing in females, soon after the obstruction of the menses, and upon its recurrence, all these symptoms going off.

The connection derives much support from the knowledge, that the approach of phthisis is generally much more insidious, and its progress more slow in women than in men, and that this difference depends upon its being rather symptomatic, than idiopathic, in females. In other cases, where it arises from some obvious occasional cause other than the catamenia, and to which females are subjected as well as males, its progress is equally rapid and violent. Impressed with this belief, we would recommend, that we keep in view the probable dependence of the pulmonary symptoms, and the other diseases mentioned upon the interrupted functions of the uterus, and direct our treatment accordingly.

But you will inquire, how are we to distinguish those cases in which phthisis is of symptomatic origin, from others? Its symptomatic origin may be ascertained, by the suppression

preceding the appearance of the pulmonary affections—and when such is the case, the disease, if not dependent, has, at least, an intimate connection with the state of the uterine secretion. Under these circumstances, advantages, we can assure you, will result from re-establishing the discharge.

When phthisis has existed for some time, this secretion, with others, will be deficient, or suppressed, from the enfeebled condition of the general system. So impressed is the female mind, with the general ill effects of this state of things, that even here, you will often be urged to do something, and advisers will not be wanting, who will press upon you the necessity of so doing. Here, however, it can be of no advantage, and you will be obliged to resist and combat with much opposition. Do it in this and all other instances, with kindness and forbearance, explain your views clearly, and divested of technicalities, and, from some experience, we are satisfied that you will make your opponents your friends.

Family *Rubiaceæ*—*Rubia Tinctorum*, or *Madder*.

Native of Great Britain and Holland, where it is cultivated as an article of commerce.

The roots are the part employed.

They are long and slender, and of the thickness of a quill.

They are red throughout.

Smell, weak.

Taste, bitterish, astringent.

It is remarkable as giving color to the bones of animals, also to the urine and milk, and from the circumstance of so large a quantity entering the circulation, has been considered deobstruent.

This article has been experimented with by several individuals.

Dr. Home seems to have had much success with it. In nineteen cases of amenorrhœa in which it was employed, fourteen cases were cured. It does not exert much sensible operation.

Dr. Dewees speaks of it in terms nearly similar, and considers among its advantages, that it may be given without any reference to the pulse, or state of the system.

The late Prof: B. S. Barton. spoke of it in very high terms.

Respectable, however, as are these authorities, and this weight of evidence in its favor, it is employed by few physicians at the present day, and whatever may be its virtues, it does not possess the confidence of the profession at large, as an article adapted to restore the uterine secretions. Indeed, in our opinion, an article exhibiting so few active properties, and which, from the mildness of its impression, can be employed under almost any circumstances, and without refer-

ence to the states of the system, can be little entitled to consideration in a practical point of view. It is not with such instruments that disease is to be arrested, or deficient secretions excited. In proportion to the mischief an article is capable of doing when improperly administered, would we estimate the benefits to be derived from it in the hands of a cautious and judicious practitioner. You have heard the authorities in favor of this article, and may form your own opinions.

Family *Labiatae*—*Rosemarinus Officinalis*—*Rosemary*.

This is a perennial plant, a native of the South of Europe, but cultivated in this country.

Sensible properties—

Smell, fragrant.

Taste, pungent and bitterish.

It is much in use as a domestic remedy for suppression of the catamenia, and it would appear from the testimony of several respectable authorities, that its powers are not inconsiderable.

It is given in the form of a strong infusion, or decoction, in doses of a tea-cupful for several successive nights, and then suspended. Its effects are aided by the pediluvium.

Family *Labiatae*, *Mentha Pulegium*—*Pennyroyal*.

Common in all parts of our country. It is a popular remedy, and is given in the form of a strong infusion at bed-time. In recent cases, this practice is beneficial, and is generally resorted to before professional aid is called upon. The use of the pediluvium also resorted to.

Secale Cornutum, or *Ergot*.

It has received a variety of names, as *Spermedia Clavus*, *Clavus Secalinus*, *Master Secale*; also, *Horned Rye*, *Ergot of Rye*, *Mother of Rye*.

Natural History.

The nature and formation of the *Ergot*, are subjects on which botanists are much divided in opinions.

The only opinion which seems to be well supported is, that the *Clavus* is a Parasitic Fungus, a species of *Ustilago*, like the different sorts of blight, smut, &c. Of this opinion is De-candolle.

It affects most of the *Cerealia*, but rye seems to be most apt to take on this morbid condition, particularly when the plant grows in low damp situations, and when it is exposed to heat, succeeding heavy rains. It is found in greater abundance on the margin of fields, than in the central parts.

Description of the *Ergot*.

It consists of grains, varying in length from a few lines to an inch—breadth half a line to four.

Form, cylindrical, tapering at the extremities.

Odor, of a large quantity, fishy, nauseous and peculiar.

Taste, when chewed for a considerable time, it produces a sense of fullness in the throat, disagreeable and slightly acid.

When taken into the stomach in moderately large doses it occasions nausea; a scruple or a drachm has occasioned vomiting, but without acting on the bowels.

The color, purplish brown or black.

Chemical analysis—

A fixed oil.

A peculiar principle called Ergotin.

Phosphoric acid combined with lime.

Gum, starch, albumen.

The properties of the Ergot—

The most prominent effect is, its direct action upon the uterus, producing and increasing contractions, when there is a predisposition to action in that organ, and restoring the catamenial secretion when obstructed. It must, therefore, be ranked in the M. M. as a *Partus accelerator*, and as an *Emmenagogue*.

Medical History.

This article was known to Holland and France in the middle of the last century. From the indiscriminate manner in which it was employed, injurious results followed, and we find it prohibited in France by a legislative decree. In 1807, its use was revived by Dr. Stearns, of New York, who was led to make trial of it, from the powerful effects it produced in the hands of some ignorant Scotch women. My information, he says, was such, as to impress upon my mind the necessity of extreme caution in my first experiments. The continued influence of this impression upon my subsequent practice, has been a source of much consoling reflection.

There can be no doubt at present, that this medicine has the power of exerting a specific action upon the uterus—that this action consists in augmenting the contractile power of that organ during parturition, and in lingering and protracted cases, inducing forcible contractions, and expediting delivery. The concurrent opinion of most physicians is decidedly in favor of these effects.

These effects are not more extraordinary than the almost instantaneous manner in which they are produced. In twenty cases, says Dr. Prescott, I carefully noticed the precise time it required to produce its customary operation. In two of them, the increased strength of the pains, and the continued action, commenced in seven minutes from the time

the decoction was taken. In one case, it was eight minutes, in seven, it was ten, in three, eleven, and in other three cases, it was fifteen minutes.

In the employment of an agent so powerful in its operation, certain rules and directions become necessary to prevent any bad consequences which might arise from its use, and which are more particularly proper, as the action when excited is so little under control.

The rules necessary in its administration, are—

RULE I. That it should never be administered when nature is competent to a safe delivery.

RULE II. It should never be given until the regular pains have ceased, or are ineffectual, and there is danger to be apprehended from delay.

RULE III. It should never be administered until the rigidity of the os uteri has been overcome, and a perfect relaxation induced. When labor has been protracted from the rigidity of the os uteri, or of the soft parts, these obstacles should be overcome by venæsection—after which the Ergot may be usefully employed, and its operation will be found mild and efficacious.

RULE IV. It should never be administered in the incipient stages of labor, nor until the os uteri is dilated to the size of a dollar.

This rule is of the utmost importance, the success of the article being very much influenced by the time when it is employed. When given in the early stages of labor, and before the os uteri is sufficiently dilated and relaxed, it often fails of success. The pains induced under these circumstances, often terminate before the labor is accomplished, and are of no advantage.

RULE V. It should never be administered in any case of Preternatural Presentation, that will require the foetus to be turned. The necessity of this caution will be obvious, when it is considered that the violent and forcible contractions induced, will add much to the difficulty and hazard of the operation.

With these precautions in the use of the Ergot, it may be safely and effectually used, and the relief afforded will, from the united testimony of those who have written on the subject, be gratifying in the highest degree. Without a regard to these rules, the most mischievous consequences will result, and an article capable of serving many valuable purposes, will be neglected and abandoned.

Having premised the rules which are to be observed in the administration of the Ergot, I shall proceed to consider those cases in which it is necessary to have recourse to it.

1. The Ergot is indicated in those cases, where the expulsion of the child is delayed from the action of the uterus being weak and ineffectual—where it has descended into the pelvis, and the soft parts are prepared for its passage. Any delay to its expulsion when in this situation, would be attended with danger to the mother from pressure on the soft parts, or from the exhaustion of strength and vital energy, which might ensue from hæmorrhage, or other alarming symptoms. In these cases, the action of the Ergot, by renewing the uterine contractions to a considerable degree, speedily effects delivery.

2. When the pains are transferred from the uterus to other parts of the body, or to the whole muscular system, as in puerperal convulsions. In these cases, Dr. Stearns observes, that after copious blood-letting, the Ergot concentrates all these misplaced labor pains upon the uterus, which it soon restores to its appropriate action, and the convulsions cease.

The beneficial effects of this practice is also confirmed by Dr. Waterhouse, who in a case of violent puerperal convulsions, accompanied with dilatation of the os uteri, succeeded by employing the Ergot, in restoring the pains to the proper organ, in a manner almost instantaneous, he says, and truly astonishing.

3. When in any of the stages of pregnancy abortion becomes inevitable from hæmorrhage. Cases complicated with hæmorrhage, call forth all the decision and energy of the medical character. Their management is connected with much hazard to the mother, and to the physician, a scene of trial and difficulty. Under these circumstances, to know that we possess a remedy, the action of which tends to restrain the hæmorrhage, must be attended with consolatory reflections.

The indication to be fulfilled, is to excite the uterus to contract, and expel its burthen, as by this means only the hæmorrhage can be arrested. The Ergot, from its action upon the uterine fibres, presents itself as a remedy suited to these purposes. It must be given to the extent of exciting contractions, and when these are produced, the flooding will commonly cease.

4. The Ergot is indicated in cases of labor, complicated with uterine hæmorrhage. The same remarks as in the preceding, are applicable here. The hæmorrhage must be stopped by plugging the vagina, the use of cold applications, &c., until the os uteri is dilated, when the Ergot may be tried with safety and effect.

5. Where the placenta is retained from the want of action in the uterus—We have seen several instances of the bene-

ficial application of this article in such cases, and from all that we know of its operation, the Ergot will be well adapted to effect its expulsion.

6. The Ergot will be beneficial in cases where hæmorrhage occurs after delivery. It occasionally happens that the uterus, from the want of tone, does not contract after the delivery of the child and secundines, in consequence of which, flooding is very apt to ensue. This is what has been called relaxation of the uterus, and is a state of extreme danger. It may be known by the abdomen being large and flaccid, and the uterine tumor not being perceptible above the pelvis. In these cases, the Ergot will be found very efficacious, and in a short time excites contractions of the uterus.

I cannot conclude this summary of the beneficial effects of the Ergot, without stating to you the opinion of Dr. Dewees on this subject. It would appear, he says, from all I have been able to collect, and from all I have observed, that it rarely fails, or disappoints, when properly prescribed.

Objections to its employments answered.

Manner of exhibiting the Ergot in Parturition. It does not exert as beneficial effects when administered in powder, as in decoction. In this latter form it is prepared, by infusing $\frac{3}{4}$ ss. of the bruised Ergot in $\frac{3}{4}$ iv. of hot water. Of this, one-third is taken as a dose. If the pains are not sufficiently severe in twenty minutes, half the remainder is given, and the last dose if necessary; but this is rarely the case. While this quantity produces its most favorable effects upon the uterus, it does not affect the stomach with nausea, or vomiting, which sometimes interrupts its successful operation.

Besides the cases already mentioned, in which Ergot may be successfully resorted to, it has been employed in profuse discharges of the Lochia, in Menorrhagia, by several persons, and by myself, with very gratifying results.

Preparations of Ergot.

Ergotine—Preparation—It has been recommended as a valuable Therapeutical agent, without being possessed of poisonous properties.

It has been particularly recommended in hæmorrhages dependent upon carcinoma of the uterus.

It is given in doses of ii. grs., every two hours, until relief is obtained.

Used also as an external application to restrain hæmorrhages from wounds.

Manner of employing it—Dissolve Ergotine in ten or twelve times its weight of water—A compress of lint moistened, is brought in contact with the wound, and while holding it, let fall, drop by drop upon the lint, the solution of Ergotine.

Oil of Ergot—Preparation.

It is given in the same cases as Ergot.

The dose is from x. to xx. m., in warm tea, or weak spirit and water. It has the advantage of being kept for a length of time without its activity being diminished.

Tincture of Ergot—A useful and convenient mode of administration.

Ergot has been recommended in hæmorrhage from other organs. The power possessed by Ergot, of exciting uterine contractions, readily explains its efficacy in hæmorrhages from the uterus. It cannot, therefore, very easily be understood how it restrains hæmorrhages from other organs. A number of cases have been published of its efficacy in restraining discharges of blood from the gums, thorax, abdomen, bladder—but further evidence is required, before we can pronounce upon its anti-hæmorrhagic powers.

The Emmenagogue operation of Ergot.

On this subject there exists considerable contrariety of opinion, some maintaining such a power, others denying it—Our opinion favorable to the beneficial operation of the Ergot in this particular. This opinion strengthened by the reports of cases in the various Journals of the day.

Dr. Randal, of Boston, in the New-England Journal.

Dr. Church, in the Nos. of the American Journal of Medical Sciences.

The authority of Dr. Waterhouse.

It is given in powder, in doses of xv. or xx. grs., three times a day, or in decoction.

Morbid Effects.

From the experiments of Dr. Robert, of Berlin, it appears to be injurious, and even fatal to all animals, which are fed for a sufficient length of time upon a moderate proportion of it, unless they escape its action by early vomiting. That dogs and cats, in consequence of discharging it by vomiting, suffer only slight symptoms of irritant poisoning—but that swine, geese, ducks, fowls, quails and sparrows, are sooner or later killed by it.

The symptoms it causes in birds and beasts, are giddiness, dilated pupils and palsy, diarrhœa, suppurating tumors, scattered gangrene throughout the body, dropping off of the toes, &c.

In the human subject it produces very distressing symptoms, and the manner in which its usual distressing effects are produced, is, when it has been mixed with the grain in meal, and been taken as food for a continuance of time in bread.

Two distinct set of symptoms have been described.

The one a nervous disease called by the French, Convulsive Ergotism.

The other being a depraved state of the constitution, which ends in that remarkable disorder called dry Gangrene; also, Gangrenous Ergotism, Creeping Sickness, &c., from its being preceded by general uneasiness, weakness, and a feeling of insects creeping over the skin, followed by numbness of the feet and toes, which, in a short time, become shrivelled, dry, and drop off—and the two affections are not apt to be blended in the same individual.

Guaiac, in the form of volatile Tincture, has been recommended in high terms in *Amenorrhœa* and *Dysmenorrhœa*, by Dr. Dewees. His success with it has been so considerable, that he has pronounced it a specific in these cases, and employs it almost to the exclusion of everything else.

The formula is as follows:

℞. Powdered Guaiac,	℥ viii.
Powdered Pimento,	℥ ii.
Carbonate of Soda, or Potash,	℥ iii.
Alcohol diluted,	℔ ii.

Mix and digest for two or three days.

The dose is ℥ i. three times a day, in a wine-glassful of milk.

The Vol. Spirits of Ammonia is added, in the proportion of ℥ i. to ℥ iv. of the Tincture. Should it purge, a few drops of Laudanum may be given.

Stimulating Injections.

Under stimulating Emmenagogues, may be mentioned the employment of *Aqua Ammonia*, in the form of injection into the vagina.

This practice was first proposed by an Italian, and he relates cases in which the treatment succeeded in a few days in producing the discharge. The proportion used was x. or xii. drops of ammonia in two table-spoonsful of warm milk, often repeated in the course of the day. It generally produced in the vagina a sensation more or less painful, according to the strength of the mixture, or the sensibility of the part, but in no case was anything dangerous, or troublesome produced.

ELECTRICITY.

A FEW remarks may be made upon Electricity, as an agent of considerable importance in removing uterine obstructions.

From the well known influence of this agent in the production of the physical and chemical phenomena of the external world, as well as on the animal economy, we would expect that it should be applied to valuable purposes as a remedial agent.

The effect of the Electric fluid upon the animal system, seems to be that of a general stimulant. It quickens the circulation, increases the insensible perspiration, and promotes the glandular secretions. Many instances are to be found in the history of our science, in which it has been employed on various occasions with considerable advantage and success.

Of its utility in *Amenorrhœa*, there is not wanting the weight of high authority, and the experience of many in this city who have employed and recommended it.

The authority of Drs. Cullen, Cavallo, and Golding Bird, on Electricity and Galvanism, in their Physiological and Therapeutical relations, adduced in support of the efficacy of this agent.

The success which has followed its use, entitles it to be considered a valuable and efficacious remedy in this disease.

Besides its effects upon the general system already detailed, it has this great advantage, that it can be applied to any particular organ.

Not reason only, and the opinions of individuals, shall we urge in support of the utility of this agent—we shall furnish the results of the experience of the late Dr. Shecut, of this city.

Of forty-nine cases which were submitted to electrical treatment, thirty-four of them were effectually cured, and the remaining fifteen relieved from their most distressing symptoms. More might have been cured, for he adds, that it is too common with patients when they find themselves relieved, to trust to nature for the rest.

In bringing before you this statement, I should observe, that such is the dread entertained by females of electrical sparks, together with the trouble of being carried to a machine, that it is seldom resorted to until medical treatment has been practiced to some extent, so that I may say the usual remedies had been unsuccessfully employed.

In confirmation of the utility of Electricity, two cases introduced which fell under our notice, in which this remedy was employed with the utmost advantage.

The case of a lady, of this city, cited, who for six years labored under a suppression of the menstrual secretion, in whom, to the ordinary distressing symptoms, was added such strong convulsive paroxysms, as to render the approach of

her monthly periods the occasion of great dread, and painful forebodings to her friends. From her situation in life, the first physicians were employed, and every expedient which medical skill suggested, was united with the utmost care and assiduity in its execution. They were all unavailing. The paroxysms and the morbid derangements still continued, and the patient's constitution became at every period, more and more enfeebled. Her existence seemed nearly to have been extended to its utmost limit, and death, I may say, had marked her for his own. In this situation electricity was proposed, and from the extreme feebleness which existed, apprehensions were entertained that the necessary shocks would be too severe. They were submitted to, however, and the first application was found useful in abating the severity of the symptoms. A few repetitions seemed to unlock the secretions which had so long been retained. With the discharge every unpleasant symptom disappeared, and to this day the lady enjoys a large share of health. So complete a triumph as was thus exhibited, deserves not only to be recorded, but to be remembered. Its application being connected with so many minute directions, which can best be exemplified upon the machine, that I must refer you to the Professor of Chemistry.

Another case of spasmodic disease, closely resembling Cataplexy, fell under my notice, in which the benefit conferred by electricity was conspicuously manifested.

(b.) Remedies which increase arterial action by giving tone to the system:

Amenorrhœa is often connected with a debilitated state of the system requiring Tonics.

The preparations of Iron have long been considered among the most useful and valuable remedies in these cases; and a number of facts could be cited, of their utility in diseases which proceed from atony of the general system, in cases of feeble re-action, and of languid and imperfect operations of the functions generally. They have, therefore, been employed in a variety of cases, which will be more particularly considered at a future period.

In the state of the system which is at present under consideration, few articles can be more beneficial. Not only are they of use by the impression which is made upon the animal fibre, but by being received into the circulating system, the energies of the heart are greatly increased, the pulse is rendered more full and strong, and greater energy is afforded to the animal functions, secretions are renewed, and health is

restored. With these changes the process of assimilation is better performed, a more healthy chyle elaborated, nutrition advances, and hence, to an increase of vascular action, is added an increase in the bulk of the body.

Of the Preparations which have been most esteemed—

1st. Protoxyd, Rust, or Carbonate of Iron.

Preparation—By adding a solution of an alkaline Carbonate to a solution of the Sulphate of Iron, the atmospheric air being excluded, the Carbonate of the Protoxyd of Iron is precipitated.

This is one of the most valuable preparations of Iron, on account of the facility with which it dissolves in the fluids of the stomach, and becomes absorbed. Its local effects are very mild.

The dose is from x. to xv. grs.

It is seldom given alone, but combined with bitters and aromatics, with a view to improve their action, or lessen the distaste which arises from its uncombined administration.

The following formula will be found a useful mode of exhibiting this article :

℞. Protoxyd of Iron,
Powdered Ginger, each, ʒ ii.
Powdered Cinchona, $\frac{3}{4}$ ss. to $\frac{3}{4}$ i.

Mix and divide into viii. or x. powders, one of which is to be taken every two or three hours, or the mass may be made into an electuary with syrup.

Or,

A better and more agreeable formula, is the Chalybeate Wine, prepared as follows :

℞. Protoxyd of Iron,
Orange Peel,
Gentian Root, each, $\frac{3}{4}$ ss.
Port Wine, ℥ ii.

These ingredients are to be bruised and then put into the wine, exposed to a moderate heat, either in the rays of the sun, or near a fire—shake occasionally—decant for use. Dose, half to two-thirds of a wine-glass, with a little water.

This preparation may be recommended as pleasant, and highly beneficial in its operation.

In the constitutions submitted to our care under this condition of the system, much attention is required in adapting the medicine given to the excitability, and so to compound your medicines, that exciting but little disgust, they may be persisted in until the object intended is accomplished.

Sulphate of Iron, another preparation employed in the same cases. It entered into the composition of Griffith's Myrrh

Mixture, which was at one time much used, but which is little employed at the present.

The following formula may be substituted for it :

R. Sulphate of Iron, ℥ i.
 Gum Myrrh, ʒ i.
 Sub-Carbonate of Potash, ℥ i.
 Refined Sugar, ʒ i.

These are to be well rubbed together, and during the trituration, add Rose Water, ʒ viiss.
 Spirit of Nutmeg, ʒ ss.

Dose, ʒ ss. to ʒ i., two or three times a day.

This preparation will be found useful in Anemia, Chlorosis, Atonic Amenorrhœa, and hysterical affections.

It is particularly useful from its ready solubility, by which it is readily digested and absorbed.

The Sulphate of Iron, administered in the form of pills, as follows : R. Sulphate of Iron, ℥ ii.

 Ext. of Gentian, or Bark, ʒ i.

Mix and divide into xx. pills—a pill taken two or three times a day.

Or,

Combined with Myrrh to increase its Emmenagogue operation.

Or,

United to an infusion of Quassia or Columbo.

These infusions preferred, as in consequence of their containing little or none of the astringent principle, their color is not changed by the addition of the salts of iron.

Iodide of Iron.

It possesses in a useful form, the properties of both the ferruginous salts and of Iodine, and it is indicated in cases where both are required for administration.

As a Tonic, it is useful in cases of debility, accompanied with softness of the solids and paleness of the skin—In scrofulous affections of the glandular system, in which both the use of Iron and Iodine are indicated.

In *Tabes Mesenterica*, *Chlorosis*, *Atonic Amenorrhœa*, it has been found serviceable by Dr. Thompson, and his testimony of its good effects is supported by that of others. Its operation must be promoted by exercise and invigorating diet—Vide Tonics.

It is given in substance and in solution.

In substance, in doses of iii. to v. grs., two or three times a day.

In solution—

R. Iodide of Iron. grs. xxv.
 Distilled Water, or
 Syrup, ʒ i.—m.

A tea-spoonful contains grs. iii., and is a dose.

Tincture Ferri Sesqui-chloridi, or *Muriated Tincture of Iron*.

One of the most powerful preparations of Iron.

It is employed in any of the cases in which the other ferruginous compounds are administered. Dose as the following.

Per-Nitrate of Iron—Preparation.

It resembles the solution of the Muriate of Iron in its medicinal properties.

Dose, x. drops several times a day, increased to xx. and xxv. drops, largely diluted with water.

Lactate of Iron.

Citrate of Iron.

Tartrate of Iron and *Ammonia*, with other preparations, which will be considered under the class of Tonics.

A variety of other means are usually resorted to, to restore the tone of the system, but they can scarcely be considered Emmenagogue.

It may be proper to mention them here. They are exercise in the open air, a very powerful means of strengthening the system, and with particularly good effects, if the lower limbs can be much employed—as in walking, riding on horseback, dancing, etc.

The cold bath.

Friction to the lower extremities.

Lastly, a cordial and strengthening diet, which, if properly directed, and caution be observed with respect to quantity, we would rank among the best of tonics.

EMMENAGOGUES WHICH DIMINISH ACTION.

The suppression of this secretion is often found occurring in full, plethoric habits, with much arterial excitement, flushed face, inflamed eyes, and pains in various parts of the body. Depleting remedies under these circumstances are the best Emmenagogues, and of these *Venesection* holds the first rank. The uterus, in habits of this description, may be considered as partaking of the same plethoric and inflammatory state, and its action to be carried to such a degree as to transcend the point of secretion. Here then venesection becomes an excellent remedy, and many instances might be adduced of its success in restoring the discharge.

To this may be added other means of depletion.

Cathartics may be considered as next in value. For the purposes of depletion, any of them may be employed, but of those which have been most celebrated, a few may be selected.

Family *Ranunculaceæ*—*Helleborus Niger*—*Black Hellebore*.

Christmas rose, flowering in winter.

Grows wild in the mountainous parts of Switzerland and Austria.

Root, consists of the root-stock, and the fibres which arise from it.

Sensible properties—

Taste of the root acrid and biting, fibres more acrimonious than the root from which they issue.

Odor, feeble compared to Seneka.

The properties of this root are those of a drastic, irritating cathartic, having an action principally exerted upon the pelvic viscera, and thereby often proving Emmenagogue.

It has been long known in the M. M., having been used by Melampus in the treatment of *madness*, fourteen hundred years before the Christian era.

It was employed in those cases where there was much torpor of the system, and in phlegmatic habits requiring strong impressions—Hence it was employed in the treatment of *Melancholia*, and in *Mania* depending upon black bile in the system.

In cases where the pelvic circulation was languid. Hence, as an Emmenagogue, it was highly recommended by Dr. Mead, and is still much valued by some practitioners.

Administered in Powder—dose, iii. to viii. grains.

In Tincture, ʒ ss. to ʒ i.

Notwithstanding what has been said of this medicine, it is a dangerous and drastic remedy. It has been tried in the affections spoken of, but in these less violent, and more manageable, and certain remedies of the same class are equally effective.

Aloes, and its *Preparations*, have been much used in these cases.

It is seldom given alone, but is combined with various articles, or administered in the form of Tincture.

Of these preparations, the most celebrated is the *Elixir Proprietatis*, or *Compound Tincture of Aloes*.

It is prepared in the following manner :

R. Powdered S. Aloes,

Fine Saffron, each, ʒ iii.

Tincture of Myrrh, ℥ii.—digest these a due time, press off the liquor, filter for use.

The dose is ʒ ss.

This is a warm, active, and stimulating cathartic, and is much used in Catamenial obstructions.

In the state of constitution under consideration, we have commonly been more successful, by administering x. or xv. grs. of Calomel at bed-time, and in the morning, following up its operation with a dose of the Tincture.

The practice is to be repeated two or three nights, and will often be found beneficial.

Preparations of Mercury.

They are sometimes useful, not only for their evacuant operation, but to renew secretions. For the latter purpose, they should be employed to the extent of producing a slight salivation, which is to be kept up for two or three weeks—and this aided by the use of blisters, placed high up the inside of the thighs, has been found efficacious after other means have failed, and in very obstinate cases should, doubtless, be resorted to. By this mode of treatment, the deranged actions of the system are counteracted and completely broken up by the operation of the Mercury, while a degree of action is communicated to the parts more immediately diseased, by the local impression of the blisters.

DIVISION 9.

SIALAGOGUES.

Definition—from the Greek, Sialen, saliva and ago, I expel.

The term Sialagogue is objectionable, inasmuch as it is applied to an effect which in most cases is incidental, and which, in many instances, is not necessary to the cure of diseases. We shall retain it as it has been done by preceding writers on the M. M., keeping in mind that the term does not embrace the principal operation to be considered in the medicines arranged under this head.

Of two kinds—*Masticatories*, or External Sialagogues.

They operate by stimulating the excretories of the saliva and mucous glands, and cause a more copious secretion of saliva.

It seems to be a salutary provision of nature, that when any acrid matter is applied to the sensible part of the tongue, and the internal surface of the mouth, a quantity of saliva and mucous should be poured out to wash it off, or to defend those parts from its irritating effects. The operation continued, a considerable discharge from the vessels supplying the head may be produced. Hence it is, that these masticatories may become local evacuants, and useful in rheumatic conges-

tions, and inflammatory dispositions in any part, supplied by branches of the carotid artery. They will also be found, by their stimulating qualities, to be of considerable advantage in paralytic affections of the tongue.

The substances resorted to for this purpose, are the *Angelica*, Horse Radish, Tooth-ache Bush, *Polygala Senaka*. Yet as they are not much employed for practical purposes, they need not be more particularly considered.

Of the *Internal Sialagogues*, Mercury is the only one capable of exciting a flow of saliva, and the only one to be depended upon.

Mercury.

Natural History—It appears like melted lead—is capable of being solidified by cold, and easily volatilized by heat.

Synonymes—Quicksilver, or living silver.

Hydrargyrum, or watery silver.

Mercury, after the winged messenger of the gods, on account of its volatility.

It is found sometimes pure, and called *Virgin Mercury*, most commonly combined with sulphur, or the metals, from which it is separated by chemical processes.

It is brought from mines in Spain, Hungary, East Indies, and other places.

Medical History—It urged its way into practice with much difficulty, being considered by the ancient Greeks as highly poisonous.

Thus *Dioscorides* ascribed pernicious effects to it as a medicine, and the elder *Pliny* declared it to have the quality of poisoning all things.

The writings of *Galen* circulating among the *Arabians*, the correctness of these opinions became questioned, and we find their most distinguished physicians introducing it into medicine as an external application in the cure of cutaneous diseases.

From its external employment, it began to be ventured upon internally, and it became common to give it in obstructions of the alimentary canal—its weight forcing a passage, and in difficult labors.

The researches after the philosopher's stone contributed very much to enlarge our knowledge of the chemical history of this article, this being one of the substances to which their attention was particularly directed, and in the zeal for discovery, its properties became better known.

The practice of the *Arabians* was soon followed by some of the physicians of Europe, towards the end of the thirteenth century, but was not established, or looked upon in general

to be safe, until about the sixteenth century, when the venereal disease making its appearance in Europe, was found to yield to mercurial preparations alone.

To Paracelsus, that extraordinary adventurer in Chemistry and Physic, we are indebted for the early introduction of this article into medicine. He was the first to employ it for the cure of the venereal disease, which made its appearance in the early part of the sixteenth century.

In the treatment of this severe, and newly distinguished disease, he acquired a degree of success which none of his contemporaries could attain, who did not resort to its use—and he must be allowed to have conferred on mankind a substantial benefit by the introduction of the use of mercury into medicine. Being found so efficacious in the venereal disease, its use began to be ventured on in other complaints. To Dr. Chisolm of the West Indies, and the physicians of this country, we owe its extensive use in malignant fevers, and the diseases of warm climates.

Chemical History—In its crude state, it produces no perceptible effect on the body, and is without any sensible acrimony, taste, or smell—yet it may be rendered active by changes in its chemical state, or additions to its substance. When rendered thus active, it seems to be a stimulus to every sensible and moving fibre of the body to which it is applied. The degree of its stimulant impression is modified in a very remarkable manner, by the different preparations of it which have been proposed and employed.

In consequence of the changes which it undergoes by its numerous preparations, it is not only a powerful stimulant, but it enters the circulation, quickens the vascular action, excites powerfully the whole glandular system, and increases all the secretions and excretions. Hence, it happens, that its various preparations produce different effects, operating sometimes as stimulants to the general system, or as cathartics, emmenagogues, errhines, &c., and hence it becomes useful in a great variety of diseases, such as febrile affections, cachectic diseases, glandular obstructions, and cutaneous eruptions.

The value of these preparations may be inferred from this circumstance, that during a period of three hundred years, experience has fully sanctioned their use; and in confirmation, I may adduce the remark of Mr. Pearson, who justly observes, that no one medicine besides, (opium excepted), derived from the animal, vegetable, or mineral kingdoms, has maintained its credit with men actually engaged in extensive practice, during a tenth part of that period. Although it is a medicine capable of being abused, to the disappointment of the patient, and the injury of the constitution, yet, under the direction of

cautious and judicious practitioners, it may be ranked as one of the most useful articles of the *Materia Medica*.

The chemical changes which have been proposed, in order to render mercury active and useful, may be reduced to oxidation in different degrees, and union with acids, constituting mercurial salts.

The Preparations of Mercury may be considered under the three following heads :

1. As they are formed by Trituration.
2. As they are combined with Sulphur and Iodine.
3. As they are combined with acids of different kinds, forming salts.

The Preparations by Trituration, are formed by rubbing Mercury with Saccharine, Mucilaginous, or other substances, until the globules of mercury are completely divided. By this operation, the mercury, being exposed to the atmosphere, becomes oxydized. They are more mild than the preparations formed by a combination with the acids, but to be effectual, the trituration should be complete, otherwise the practitioner will experience uncertainty in their use.

The first of the Preparations under this head, is the *Pilulæ Hydrargyri*, or *Blue Pill*.

Preparation—This is one of the best preparations of mercury, and may, in general, supercede most other forms of this medicine. In its preparation, the mercury is minutely divided, and converted into the black oxide. (Present a specimen of the blue mass manufactured by steam power, being in a more minute and permanent division—also of the protoxide of mercury as it exists in the blue mass).

Blue mass can be prepared more readily by adding this oxyd to the conserve of Roses, in the proportion of an ounce to the pound.

Or given alone in the dose of $\frac{1}{4}$ gr. at bed-time, in a little syrup.

The blue pill is much employed to produce a mercurial impressions on the system, sometimes to act as a laxative. For these purposes it is much less active than calomel, but possesses this advantage, that it may be administered to irritable subjects, who are purged, or otherwise incommoded by the Proto-Chloride of Mercury. Employed in the treatment of various affections of the stomach, and chylopoietic viscera.

Dose, iv. to vj. grs.

One grain of mercury is contained in four grains of the mass, according to the Edinburgh formula.

Do. in iij. of the London.

Do. in ij. of the Dublin. The first is preferred.

Adulterated by the substitution of earthy clay for the mer-

cury, and a preparation examined, contained but little more than a fifth of the proper proportion of mercury.

Mistura, Hydrargyri Mucilaginoso.

This is the second preparation formed by trituration, in which the mercury, reduced to the state of a dark gray oxide, is combined with gum or vegetable mucilage. Called, also, Plenck's solution, from being introduced into use by Professor Plenck. This is an inconvenient mode of exhibition, as the mercury does not remain sufficiently suspended—But rarely employed.

Used in the formation of gargles, collyria, injections, &c. Our experience not considerable with it, preferring other articles.

Unguentum Hydrargyri, or Mercurial Ointment.

Two preparations in the shops, the strong and the mild.

Preparation—Two drachms of the former contain one drachm of the mercury; and three drachms of the latter, contain one drachm of mercury.

The former used chiefly for mercurial frictions—the latter as a dressing for ulcers and some cutaneous affections.

Mercurial Ointment rarely found in the shops of a proper quality. This depends upon the difficulty which is found to exist in minutely dividing the globules of the mercury by the mere friction of tallow and lard.

To facilitate the operation, various expedients have been proposed. These enumerated.

The addition of a little of the old ointment to the quicksilver, facilitates the operation. State in which mercury exists in the ointment—mechanical division—a protoxyd, and as a sebate of mercury.

Medical application—Mercurial Ointment is the form of introducing mercury into the system by friction. It is the least exceptionable form, because the skin is not near so essential to life as the stomach, and is therefore capable, in itself, of bearing much more than the stomach. It is adapted to patients whose bowels are irritable, and will not bear the internal use of mercurials, or who are purged, or otherwise incommoded by the use of mercurials, or when it is desirable to make a speedy impression on the system.

Employed in local affections, tumors, buboes, &c.

Before having recourse to this mode of employing mercury, the patient should be prepared.

He should take a cathartic.

Use the warm bath.

Skin to be cleansed with soap and water.

The patient should rub in at night from ζ ii. to ζ iii. of ointment, where the cuticle is thin, and the absorbents numerous.

Before each new application, the grease and blackness should be washed off with soap and water—The friction should be performed by the patient. If an assistant is required, he should protect his hand with a glove.

The frictions to be continued until the gums begin to swell, or the breath to smell disagreeable, when they should be left off.

When an immediate effect is desired, it should be rubbed into the axilla—mercurial socks should be worn. This practice only to be resorted to in desperate cases—in Hydrocephalus, Tetanus, &c.

Mercurial ointment has been employed in *Erysipelas*.

In conjunction with depleting remedies, it relieves the burning pain, heat, and Inflammation.

Mercurial ointment is frequently prepared with a smaller proportion of mercury than that directed to be used in the Pharmacopœias—and in order to communicate to it the requisite shade of color, Sesqui-Sulphuret of Antimony, Indigo-Prussian blue, are added.

Mercurial ointment is rarely, or never, administered internally in this country, but it is used in Europe, and often with considerable effect. It is said thus administered to be efficacious in exciting speedy salivation.

It is given in doses of from ii. to v. grs., in pills, to which liquorice powder is added.

How does mercury operate when applied to the surface?

That it is absorbed by the skin is stated by some, and that it is inhaled by the lungs, is contended for by others. We have already explained our views fully on this subject, and will refer to what was said at the commencement of the course.

We have sufficient evidence that it is taken into the circulation, and that it produces its good effects, by virtue of being taken into the system.

That certain medicines are absorbed and carried into the circulation, we have maintained on a former occasion. That mercurial medicines may likewise, we know, from this practical fact, that infants laboring under syphilitic affections, are cured by administering mercurial preparations to their nurses. Thus it would appear to have been absorbed, carried into the blood-vessels, and secreted with the milk by the arteries of the breast.

Some facts adduced, which prove that when mercury is combined with the atmosphere in the state of vapor, pro-

duced by the partial evaporation of the metal, its effects are very active.

Hydrargyrum cum Creta.

Prepared by triturating mercury and prepared chalk until the globules disappear.

This is a mild preparation, and well adapted^d to children, particularly to the various disordered conditions of the digestive organs occurring in them.

In these cases, the dejections exhibit considerable derangement in the secretions, being either of a greenish color, or clay colored, or white.

Consistence, thin and watery, or curdled, or slimy.

Odor, highly offensive, or earthy.

In the above condition of the secretions, this preparation will be found valuable, aiding its operation by attention to diet.

Also valuable in Syphilis of infants.

It is given in small doses frequently repeated, and often the beneficial effects which result are more permanent, than when larger doses are employed—at the same time, they can be continued longer without apprehensions of salivation.

Three grains of the powder contain one grain of mercury. Half this quantity may be given at a dose, and to improve its antacid operation, combined with an additional portion of prepared chalk.

Combination of Mercury with Sulphur.

Black Sulphuret of Mercury—Proto Sulphuret of Mercury, or Æthiops Mineral.

Preparation—Employed as an alterative in the glandular diseases of children, in scrofulous swellings, and cutaneous diseases.

Lately recommended by Bicquerel in the Treatment of Typhoid Fever—vide New York Journal of Medicine, No. 49. It is a preparation but rarely employed, being the least active of the preparations of Mercury.

Dose, v. to xxx. grs. two or three times a day.

Bi-Sulphurate of Mercury—Red Sulphuret of Mercury—Facitious Cinnabar.

Preparation—Used at one time in cutaneous and gouty affections, and with musk formed the famous Chinese remedy in Hydrophobia.

Not much used internally, but as a fumigating agent in venereal ulcerations of the throat and nose.

Ulcers and excrescences about the anus and pudenda, are particularly benefitted in this manner.

Mode of applying the fumes—By placing a piece of hot iron at the bottom of a night stool-pan, sprinkling upon it a small portion of the Red Sulphuret, and when volatilized, seating the patient upon the pan.

Ulcers in the fauces treated also with the fumes of the Red Sulphuret—Contractions of the joints from Rheumatism.

A few remarks may be made upon the subject of Fumigations.

The practice is among the most ancient methods of affecting the system with mercury, and in some respects it is a very eligible mode.

The advantages attending its use, are—

That we are enabled to affect the constitution when other methods fail.

That these effects can be produced in a much shorter time than any other method requires.

It can be employed when venereal ulcers are making great ravages.

When the system refuses to take on mercurial action.

And when the bowels will not bear the internal use of mercury.

Mr. Abernethy approves of this practice, and recommends it as a very powerful and innocent means of mercurializing the system.

The manner of applying the fumes is in a bath prepared as the Sulphur bath. The patient is seated within, and breathes an air foreign to the bath, the mercury being volatilized outside.

The powder preferred by Mr. Abernethy, is the Protoxyd of Mercury, obtained by the decomposition of the Proto-Chloride of Mercury.

An extension of this practice has recently been proposed, to the treatment of Febrile diseases, as Yellow Fever, Bilious and Malignant Fevers generally, Puerperal Fever, Typhus Pneumonia, &c.

By this plan, it is proposed to inhale the fumes of mercury, and to take them into the lungs.

The process explained. The system is placed by this practice under the mercurial influence in a very short time, in twelve hours, and it must be a very intractable state of the body, which can hold out more than two or three days. Vide Dr. S. Jackson, of Northumberland, Pa., on this subject, American Journal Medical Science.

The combinations of mercury with Iodine, will be considered under the head of Iodine.

The third division of the mercurial preparations includes those formed with acids.

These preparations are the most energetic.

The first is *Hydrargyrus Nitratus Ruber*, *Red Precipitate*, or *Peroxide of Mercury*.

Preparation—Seldom used internally—sometimes violent in its operation, even in doses of a grain.

Employed as an external application to cleanse ulcers and to stimulate them to action. As an escharotic, it is used to repress exuberant granulations, and with lard it forms an ointment for various purposes.

Sub-Persulphate of Mercury, or *Turpeth Mineral*.

Preparation—It is too harsh for general use, and is seldom employed. Its action is not confined to the primæ viæ, but it is apt to produce salivation, if a purgative is not employed soon after.

The *Ammonio Chloride of Mercury*—White Precipitate.

This article is only used externally in the form of ointment, in the proportion of ʒ i. of the salt to ʒ i. of simple ointment, and is of great value in obstinate eruptions, herpetic affections, psora, &c.

Adulterated with white lead, chalk, or gypsum.

The combinations of mercury with chlorine, are the most valuable and efficacious remedies the M. M. affords. They form the Per and Proto-Chloride of Mercury.

The *Per-Chloride of Mercury* is formed by subliming a mixture of the Bi-Sulphate of the Peroxide of Mercury, or Turpeth Mineral, with the Chloride of Sodium, the Per-Chloride being formed during the process.

This is the most corrosive and acrid preparation of Mercury with which we are acquainted. It was first introduced in the treatment of Syphilis by the celebrated Van Swieten, and by him recommended in the form of alcoholic solution. He was led to the employment of it, from a suspicion that salivation was not requisite for curing this class of diseases, and from the great abuses practiced with the mercurials in these cases.

He commenced his experiments with it, and meeting with much success, recommended it to Maximilian Locher. He employed it at the Hospital of Vienna, between the years 1754 and 1762, and cured by it no less than 4,880 persons, without inducing salivation, and testifies that no person died, or experienced the least dangerous or painful symptoms in

consequence of this remedy. The cures that were effected were permanent.

Its opponents state, on the other hand, that other mercurials are quite as effective and speedy—that the cure by Corrosive Sublimate is not permanent—and lastly, that its corrosive and irritant properties render its employment objectionable.

This article has been very fully tested in this country, and more particularly by the late Dr. Hosack, of New York. He is fully convinced of its anti-venereal powers. That the severe effects attributed to it by Swediaur and others, upon the stomach and the intestinal canal, he has never noticed—and, on the contrary, that from its mildness in proper doses, it can be given to children, and even infants, laboring under hereditary taint.

Our opinion founded on some experience is, that the Blue Pill, or Calomel, are by far the best remedies for the venereal in its first stages, but that after these have passed off, and the secondary have commenced, the Corrosive Sublimate, aided by decoctions of Sarsaparilla, or combined with the Syrup of Sarsaparilla, as already mentioned, will be found to be better than any other preparation.

Forms of administration—In the form of pills, or dissolved in spirits, as follows:

R. Corrosive Sublimate, grs. iv.
Alcohol, $\frac{3}{4}$ i.

The dose for an adult is xxv. drops, which is equal to $\frac{1}{4}$ of a grain.

For a child, iv. to vi. drops—repeated three or four times a day.

Formula for the pills:

R. Corrosive Sublimate, grs. iv.
Muriate of Ammonia, grs. xv.
Distilled Water, $\frac{3}{4}$ iss.

To this is added as much of the crumb of bread as will make it into a mass—divide into one hundred and twenty pills.

Each pill contains the $\frac{1}{3}$ of a gr. of Mercury.

The Muriate of Ammonia is added, because by it the Corrosive Sublimate is rendered more soluble in water.

The Per-Chloride is employed in other diseases with advantage.

In *Ulcers* which have existed a long time.

In *Cutaneous affections*.

In *Rheumatism*.

In *various Chronic Inflammations* it is a valuable article combined with the vegetable alteratives, particularly Sarsa-

parilla, and in these cases is given in very minute doses, as the $\frac{1}{3}$ or $\frac{1}{2}$ of a gr. in a pint daily. It is to be continued as long as it is thought necessary, taking care to watch its effects upon the mouth, and always keeping in view, that mercury given in excess, will tend to increase, rather than destroy constitutional irritation.

The value of this combination may be inferred, when we state our belief, that Swain's Panacea owes its efficacy to the union of these substances, and when you consider the numerous and diversified affections in which this medicine has been employed, and the beneficial effects which have generally been derived. We have introduced this subject again to your notice, as much with a view to bring to your recollection what was then said, as to inform you, that the suspicions which we expressed of the composition of the medicine, have been confirmed by conversation with several gentlemen. The composition had been investigated by Prof. Hare and others, and from the evidence of circumstance, there could be little doubt on this subject. So general was the belief, that most of the physicians of Philadelphia were in the habit of preparing it for themselves.

The Per-Chloride of Mercury dissolved in a Tincture of Cinchona, in the proportion of ij. grs. to an ounce, and given in doses of x. or xv. drops, according to the age of the patient, twice a day, will be found a valuable medicine in the chronic diseases of children, and with particularly good effects, in those cases where there is enlargement of the mesenteric glands.

Many of the empirical remedies, which are boasted of as curing Syphilis without mercury, owe their efficacy to this substance. The dose being small, it is easily disguised with other articles with which it is mixed, and it is less liable than the other preparations of Mercury to excite ptyalism.

Externally it is employed for various purposes.

In combination with lime-water, it forms the yellow-wash, so much recommended in the treatment of obstinate and ill-conditioned ulcers.

Poisonous operation of the Per-Chloride.

Effects upon the system in large doses—

It acts as a poison in these cases by virtue of its affinity for albumen, fibrin, and the other constituents of the tissues. The corrosive action exerted upon the stomach, is extended to the heart and brain, and death is the result of the suspension of the functions of these two organs so essentially necessary to life.

Treatment to be pursued—

Antidotes—The best is albumen, or the white of eggs beat up with water, and taken in large quantity. It decomposes the corrosive sublimate, and forms a triple compound, consisting of albumen, muriatic acid and calomel—An ounce of the white of eggs is required to neutralize 3 grs. of the corrosive sublimate.

Along with the use of this article, blood-letting should be had recourse to, if the organs of the abdomen are in a state of inflammation, for it is not uncommon to find Gastritis, Enteritis, and even Peritonitis, as the consequence of this accident.

Local bleeding by leeches should be added, and fomentations to the abdomen.

The next of the combinations of chlorine, is the
Proto-Chloride of Mercury, Calomel.

It is prepared by rubbing purified Quicksilver with the Per-Chloride of Mercury until the globules disappear. It is then sublimed in a glass matrass, or Florence flask. When sublimed, it is reduced to powder, and well washed for the purpose of separating any portion of corrosive sublimate which may have been formed in the process. It is again sublimed and washed—corrosive sublimate being soluble in water, and calomel insoluble, this is a ready mode of separating them.

This is the most important, and the most extensively employed article in the whole range of the *Materia Medica*. It is capable of fulfilling more indications, and of being applied advantageously to a greater variety of diseases, than any other article which is furnished by the vegetable or mineral kingdoms.

It is anti-syphilitic, anti-spasmodic, alterative, deobstruent, purgative, errhine, sialagogue, and anthelmintic.

General Operation of Calomel on the System.—Mercury, when rendered active by chemical changes, as in the state of an oxide, or neutral salt, seems to be a stimulus to every part of the system. When taken into the system, it manifests itself by a quickened circulation, gives the blood the disposition to take on the buffy coat when drawn, renders the pulse frequent and harder, increases respiration, excites the temperature of the body, occasions a whitish fur on the tongue, and other symptoms of general inflammatory action.

It seems, also, to be a stimulus to all the excretories of the body, of the salivary glands, of the trachea, lungs, digestive organs, the chylo-poietic viscera, and the whole alimentary canal.

It is slow in its operation, but when accumulated in the system to a sufficient degree, its action is exhibited in the production of such excitement as to be called *Morbus Mercurialis*, during which the functional operation of all the systems of the body are quickened and excited to a very great degree.—*Francis' Inaugural Dissertation*.

It is these various and diversified powers which give to mercury its very great superiority, and as particular effects are produced by regulating the dose, it becomes a remedy very generally applicable to diseases.

The good effects of mercury in *Fevers*, depend—

1. On its power of evacuating *bile, feces*, and the *morbid secretions* of the alimentary canal. It is well known, that in malignant fevers, the intestines are loaded, not only with increased quantity, but a vitiated quality of all the secretions which are poured into them. These, by retention, not only increased in the degree of their morbid qualities, but by their accumulation become, in reality, exciting causes of disease. They have been known to possess such a degree of acrimony as to excoriate the rectum, and the skin of the neighboring parts. For the removal of these acrimonious matters, the milder cathartics, as the neutral salts, etc., have been resorted to, for fear of increasing the debility which exists. But Calomel alone, though generally in combination, surpasses all other cathartics, not only evacuating the contents of the bowels, but by exciting the several glands which empty into them, to a free and copious discharge, changing the character of their vitiated secretions, relieving topical congestions, and by removing the causes which indirectly debilitate, the patient is strengthened.

2. The good effects of mercury in the cure of fevers, depend upon its exciting a new action in the vessels, or one different from that which constitutes the proximate cause of the disease, and accordingly, we find, that as the mercurial action begins to exhibit itself, the symptoms of the original disease subside. This action commences with the approach of salivation, which seems to be the test of the mercurial impression. The fact of the original disease giving way, upon the approach of the Mercurial, is so well established, that it hardly seems necessary to adduce proofs. For your satisfaction, we might detail the opinions of the most distinguished advocates of the mercurial practice on this point, of Drs. Rush, Chisolm, Clark, Warren, and others.

Application of Calomel to the Cure of Diseases.

In *Yellow Fever*, the practice of several physicians stated—of Warren, Chisolm, Clark, and of the resident physicians of

Charleston, during the several seasons that it has appeared as an epidemic.

We would not wish to be understood that the mercurial is the only practice which is to be pursued. We are, on the contrary, most favorable to the employment of general and local blood-letting in this fever, the use of the cold affusion, purgative and diaphoretic medicines, with blisters, and the benefits to be derived from a rigid system of abstinence, when that peculiarly irritable and inflammatory condition of the stomach takes place, which precedes and accompanies the black vomit. With these means we have combated this severe disease, and the practice, we have had reason to think, was as successful as most of our medical brethren.

In severe cases, it was observed, that the high excitement of the system resisted the mercurial action, and though employed in large doses, and repeated at proper intervals, yet it failed to produce its specific effects, and death was often the consequence. In other cases, where this excitement was less violent, the peculiar effects of the mercury were produced, and with the ptyalism a gradual subsidence of all the symptoms took place. In these cases, we have every reason to think, that equally beneficial effects follow from the practice just mentioned—and on some accounts it was preferable, as patients in their convalescence were not distressed with the disagreeable effects of sore mouth, swelled tongue, etc. The mildness of the particular case, as Bright and Addison observe, permitted, the usual operation of the remedy, rather than that the remedy controlled the fever.

In the *Bilious Remittent, or Country Fever*—The beneficial operation of this medicine in these cases, may be inferred from what has been said of the peculiar operation of this article, in another place, upon the alimentary canal and the chylopoietic viscera. To the advantages arising from the use of mercurials in this form of fever, it may be added, that relapses are less likely to follow, than where the purgative and diaphoretic course is pursued. Exercising an influence so powerful as this medicine does, and in the several modes pointed out, we still think, that in the very acute diseases of our country, it is not alone sufficient. In this disease, as well as Yellow Fever, blood-letting at the commencement, is of the utmost importance in diminishing action, lessening undue determinations, reducing inflammation, and other effects, of which we have already spoken. Neither can we depend upon Calomel as a cathartic, for in these acute cases, its operation is too slow, and the sufferings of the patient require that prompt measures be enforced. It is proper, therefore, to alternate its use with the saline cathartics, and this course continued

until the disease begins to decline, or the mercurial preparations to exhibit their effects upon the system, either in improved secretions, or if still further continued, in its impression upon the gums and salivary glands.

While thus advocating the use of this article, we cannot too earnestly caution you in the administration of it. Salivation is always painful, and very distressing to convalescents. All that is required is a gentle mercurial impression to the extent of producing tumefaction of the gums, and a slight spitting. This is what most practitioners will allow is all that is to be desired. Yet, from a careless employment of the medicine, the sialagogue operation often takes place to a great, and even alarming degree. It is, therefore, important that you should be informed how it may be obviated, and by attention to a few rules, you will, in most cases, succeed.

RULE I. In those cases where Mercury is employed, examine the evacuations of your patient, and as soon as they are changed, either from a dark, grey, or ash color, to the color of bile—or their consistence, from being thin and watery, to a more natural appearance, which will always take place when the liver pours forth a more healthy secretion, the medicine should be discontinued, or given at longer intervals.

RULE II. By omitting the use of the medicine as soon as it exhibits the first indications of action upon the gums. These are redness, a peculiar fætor upon being rubbed, and a slight ulceration about the teeth.

RULE III. By attending to the constitution of the patient. The sialagogue operation of mercury is very badly borne by persons of delicate habits, in whom the nervous temperament chiefly prevails. It is badly borne by persons advanced in life, whose constitutions have been impaired by previous attacks of sickness, and who are, therefore, weak and enfeebled.

RULE IV. The sialagogue operation of mercury should not be attempted in persons under twelve years of age.

By attending to these rules, severe instances of salivation will be prevented from occurring, we will not say invariably, but in a great majority of cases. Only observe the same precautions with this medicine, which are used with other active articles. We discontinue the use of opium when sleep is induced—digitalis when it affects the brain and the organ of vision—arsenic when it produces intumescence of the cellular membrane, and calomel when it *changes the secretions*. This is sometimes difficult to be discovered, but attention is, on that account, the more necessary, particularly as its effects are more lasting and distressing.

In *Typhus Fever*—In the early stages it is valuable as an evacuant, to relieve the intestines of black and viscid matter, and abate the symptoms.

In the advanced stage it is resorted to as a stimulant in small doses, united with very small doses of opium, to bring on a mercurial fever, and to sustain the actions of the system.

In the *Phlegmasiæ*, and more particularly of the glandular system, is mercury used and recommended.

In the acute attacks of Hepatitis, more active measures are required—but in chronic cases, no other practice than the mercurial can with safety be trusted. The secretion of healthy bile, says Johnson, the flow of saliva from the mouth, and a gentle and uniform perspiration on the skin, were synchronous effects of the medicine, and certain indications of an approaching cure.

Where Inflammation of the Liver runs through its stages with rapidity, as in India, calomel must be resorted to early and vigorously, and it must be given in large doses until ptyalism is excited. It operates beneficially in preventing supuration, and other derangements of its structure, by forcing it on to an active secretion, by which its state of congestion is relieved, as congestion or undue determination is relieved in other instances, by a spontaneous active secretion, producing *resolution* of the inflammation.

To the many operations of mercury, a new title has of late been added, viz.: an *anti-inflammatory operation*. It derives this title from its efficacy in the cure of Ophthalmia—its efficacy in every symptomatic Venereal inflammation—its success over the Hepatitis of India, and its utility in other inflammatory affections. With an anti-inflammatory intention it is employed in Pneumonia, Rheumatism, and other cases—and it seems to do good in these cases by its power to equalize the circulation, and enable the capillary system of vessels to resume their secretory offices as before.

Practice pursued by Dr. Hamilton in the employment of this medicine.

In Inflammatory affections of the Throat.

In *Cynanche Trachealis*, or *Croup*, Calomel has been recommended by the Scotch physicians in the highest terms. With the views which have been presented of this disease, it should be treated actively in the commencement until inflammatory symptoms are abated—afterwards no medicine will be more effectual than Calomel in small doses frequently repeated, calculating that beneficial effects would arise from its equalizing the circulation, and restoring to the capillaries their accustomed powers of secretion.

In *Pneumonia*, Mercury has also been recommended. The treatment should be the same, active depletion at first, and Mercury combined to subdue the remaining excitement.

In *Phthisis Pulmonalis*, we have many and contradictory reports. The reports of Dr. Rush, of the efficacy of this treatment, gave rise with some to sanguine expectations, that a remedy was at length discovered for this medical opprobrium. Mercury has been tried to the extent of producing salivation, and it has been known to suspend all the symptoms of Tubercular Phthisis, the patient not coughing during the ptyalism. But though the symptoms may be suspended, they recur as the mercurial affection abates, and the patient dies after a long course of the disease. In short, we never knew of recovery from phthisis by mercury, or any other means, where the tubercular form of the disease was characterized.

Bronchitis, after refusing to yield to all the artillery of the antiphlogistic treatment, and after continuing a period which threatened to end in consumption, has had all the symptoms attending it, yield to small doses of calomel and James' powder, repeated several times a day. The mercurial commonly quickened the pulse a little before the gums were affected, but after a slight ptyalism was produced, the pulse has commonly subsided, the patients lost their other symptoms, and were regularly convalescent from that period.

In *Rheumatism*, after action has been sufficiently reduced, diaphoretics become useful. Their utility is much increased by the addition of Calomel, and as far as we can judge from experience, the combination of this article with opium and ipecac, will be found well adapted to these cases.

In the *Intestinal affections*, mercury has been used with advantage.

In *Dysentery*, it has been extensively used, especially in warm climates. In the milder forms of the disease, the common methods of treatment will, doubtless, succeed, as venesection, purgatives, anodynes. But in the more violent attacks of it, such as occasionally appear in our climate, and especially in the East and West Indies, it is a medicine very much relied upon. It is given in these cases in large doses, as xv. to xx. grs., until ptyalism is excited, when as is asserted, upon the testimony of all writers on the subject, the disease subsides. It operates beneficially in the several ways I have mentioned, restoring the biliary secretion, with the other secretions of the body.

From the circumstance that it is often better retained in large doses than small, from its allaying vomiting and irritability of the intestinal canal in cholera, diarrhoea, dysentery,

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and some other cases—its action in these large doses would seem to be *sedative*, and this would appear to be the opinion of physicians practicing in the East Indies.

In *Malignant Dysentery*, it requires to be given in large doses.

In *Dyspepsia*, Mercury is a valuable article. The principle to be kept in view in the treatment of some forms of this disease, is, together with the use of means which give vigor to the alimentary canal, we should also employ those which correct the morbid state of the liver. Mercury, says Wilson Philip, has a specific operation on the liver—a power not only of exciting its functions, but of correcting the various derangements of that function in a way which it does not possess with respect to any other organ, and which no other medicine possesses with respect to the liver.

Its use should be discontinued when the appearance of the alvine discharges indicates the return of a healthy secretion. With its improvement the skin generally becomes relaxed and of a proper temperature, the pulse more dilated, the color and expression of the countenance better, and in particular, that expression of languor so peculiar to the advanced stages of the disease abates.

In *Cholera Morbus*, mercury exhibits equally valuable effects. Its employment fulfills many indications. It allays the inordinate gastric irritability, lessens the too abundant secretion of bile, and by equalizing the circulation, relieves the congestion of the vessels which form the vena portæ.

In this disease, from the great irritability of the stomach and upper part of the intestinal canal, few evacuating medicines, if required, could, from their bulk, be retained. They could only add to the general distress.

Calomel is, therefore, peculiarly useful in this situation—it is inodorous, insipid, and is comprised in a small compass. It is, therefore, highly probable that it will be retained in the stomach, and if a sufficient number of doses are given, it will remove the offending matters of the primæ viæ—It equalizes the hepatic secretion—It is well calculated to contend with this complaint, and we have known a single dose, or a couple, relieve all the urgent symptoms, after oil and laudanum, enemata, cathartic and anodyne, fomentations, and a variety of other means, have been employed to no purpose.

The practice we pursue, is to administer four or five grains in a pill or powder, combined with one grain of opium, or alone, according to the degree of irritability, every two hours, until the disease subsides. Other means are to be employed which will be pointed out to you by the professor of the practice.

In *Cholera*, (*Asiatic*)—Dr. Griffin asserts that Calomel proved a most successful medicine in Cholera, controlling or arresting its progress in eighty four cases out of one hundred, when administered while the pulse was perceptible at the wrist—but, on the contrary, proved detrimental when given in the collapse. The practice was tested in fourteen hundred and forty-eight cases. The dose was from ℥ i. to ℥ ii. every hour or half hour.

In speaking of the use of Calomel in this and other diseases, you must not conceive that any article is sufficient of itself to effect cures. It is only one of the means, which is often useful in conjunction with such other aids, as are to be derived from diet, clothing, the preparation of the system, the stage of the disease, and other circumstances, of which you must judge.

In the Intestinal Derangements of Children, nothing to add.

In *Tetanus*, relief has commonly been expected from the employment of opium, given to a large extent. Much experience has convinced me of the entire inefficiency of this plan of treatment, and the necessity we are under of looking to other means for the subjugation of this distressing affection. Of those to which I would next resort, mercury promises to be most powerful. As the progress of the disease is rapid, we would employ it in doses of ten or twenty grains, every two hours, until an impression was made on the system, employing at the same time mercurial frictions. Dr. Rush cured a case of this disease by salivation, aided with bark and wine. The German physicians speak highly of the same practice, and my friend, Professor Dickson, has succeeded by the use of the same means.

In *Dropsies*, the utility of mercury is well known. Combined with various diuretics, it promotes their operation, and increases the activity of the absorbents. When the disease is connected with visceral obstructions, the employment of this article is attended with the happiest effects.

It would be easy for me to dilate upon the application of mercury to the cure of diseases, as there is scarce one in which it has not been used, and the beneficial effects of which, at one stage or the other, has not been acknowledged. The greatest difficulty we have experienced, has been, to condense the matter which is to be found relative to its application. There is one other disease in which its very great importance should not be overlooked, viz: its use in syphilitic affections.

We shall conclude the account of the application of mercury to the cure of diseases with its use in *Syphilis*. My hearers already know that mercury is the grand remedy in

all complaints, unequivocally venereal. This is so much the case, that this medicine is usually regarded as a specific, and the only one to be depended upon as a cure.

The origin of the venereal disease has been a subject of much debate, among most medical writers. By the greater part of them we are informed that it was brought by Columbus and his companions from the West Indies, between the years 1494 and 1496. The proofs, however, in favor of this origin are all equivocal, and we shall find much difficulty in ascertaining the precise period of its appearance, as well as of the causes which gave rise to it. In whatever manner it arose, says Mr. Hunter, it certainly began in the human race, as we know of no animal capable of being infected with this poison. It is probable, too, he says, that the parts of generation were the first affected; for if it had taken place in any other part of the body, it might probably have never gone further than the person in whom it first arose.

Desruelles attributes the origin of the disease to irritation, and refers its appearance among the Spaniards, on their return with Columbus, to their licentious conduct with the Aborigines of America, aided by the novelty of their situation, the influence of climate, diet, &c.

When the disease first made its appearance in Europe, its malignity was so great, that the consternation produced by it may more easily be conceived than described. The manner in which the disease was communicated—the rapidity with which it passed from one order of disgusting symptoms to another—and, above all, the want of knowledge of the remedies which were proper to arrest its progress, furnished reasons sufficiently strong for regarding it as one of the most destructive scourges which had been inflicted on mankind. We can form no idea of the disease at that period from its present appearances. There can be little doubt at present of a change of character of the Syphilitic disease, and that its symptoms are milder and more tractable. Astruc observes, more than one hundred years ago, that the disease is less violent, its symptoms not so many, so painful, or so difficult of cure—it yields more readily to remedies properly applied, he says, and seems by little and little to approach towards a cure.

On its first appearance in Europe, of a hundred persons infected, there were no fewer than ten deaths. If such was its character on its first appearance, the importance of a remedy calculated to arrest its progress, may well be conceived.

In the medical history of mercury, we have given you an account of the manner in which this article came to be employed in the treatment of Syphilis, and stated to you that it

was to the Arabian physicians we are indebted for its application to the purposes of medicine. Rhazes, we are told, recommended an ointment, in which quicksilver was an ingredient, for the cure of cutaneous diseases, and the practice we may suppose, soon became common, to apply it to diseases having a syphilitic origin. From its external use it began to be ventured upon internally, and we find about the year 1535, this mode of exhibition beginning to be practiced.

It is not necessary to employ your time with an account of the variety of preparations which were in vogue, nor of the empyrical and barbarous practice which was pursued, but will at once pass over this period to the eighteenth century, when this disease began to be treated on scientific principles. The doctrines of Mr. Hunter have had a greater effect in producing revolutions in the theories formed, concerning the nature and treatment of this disease, than any that preceded him, and even at this time, have a very great effect in regulating the practice upon this subject. Having had such extensive influence, it may not be amiss to state the leading opinions entertained by him on the subject of the venereal. He considers—

1. That the venereal poison being taken into the system, becomes universally diffused, and contaminates such parts as are susceptible of the venereal action, and that it is soon after expelled with some of the excretions.

2. That the parts contaminated do not immediately go into venereal action, but that they acquire a new state or condition, which is termed a disposition to take on venereal action.

3. That the number of parts contaminated does not depend upon the quantity or strength of the virus absorbed.

4. That the disposition once formed in a part, necessarily goes on to action at some future period.

5. That mercury can cure the venereal action, but cannot remove the disposition which has been previously formed, and has not yet come into action.

6. That although mercury does not destroy the disposition already formed, yet that it prevents it from forming.

7. That though the disposition continues, it does not go into action during the use of mercury.

8. That the action having once taken place, goes on increasing without wearing itself out.

9. That parts once cured never become contaminated again from the same stock of infection.

10. That the matter of the secondary ulcer is not infectious.

11. That the venereal matter is as soon destroyed in a large chancre, as in a small one, the mercury acting equally on every part of the sore.

Such is a summary of the views of Mr. Hunter on this subject, and the more closely they are examined, the more strictly will they be found to accord with the progress of the disease. Some of his positions are not clear in their expression, and are ambiguous in their meaning, particularly that which relates to the disposition of parts to take on the venereal action.

It is not my intention to enter upon a defence of Mr. Hunter, but to bring before you the treatment he recommended, and which has a number of advocates.

Mercury, he says, must be employed both externally and internally, in every case, let it be ever so slight, even when the disease has been destroyed at its commencement, as when the ulcer is touched with nitrate of silver.

It must be employed during the whole time of the cure, and continued for some time after the chancres have healed.

It should be carried to the extent of producing a slight sialogogue operation, when it must be discontinued, or kept up by smaller doses several days. We have already referred to the pernicious extent to which pytalism has been carried. I have heard, says Dr. W. Philip, the late Dr. Munro, of Edinburgh, state the quantity of saliva which must be discharged to eradicate particular affections. A slight salivation, as we stated, is sufficient in most cases, and it is most effectual when produced by small quantities of mercury, gradually introduced, than when the condition of the system is suddenly changed by a large quantity.

If the remedies have been applied before the venereal matter has been absorbed into the system, the disease will terminate with the healing of the mouth.

But if matter has been absorbed, other parts of the body may acquire a disposition, as Mr. Hunter calls it, to diseased action, as the skin, the throat, the bones, and the disease will appear severally in them, and in the order in which they succeed.

This is the part of Mr. Hunter's doctrine which has been the subject of much controversy. It has been asked how is it possible to prove that a venereal disposition has, or has not existed, at any particular time?

If after a certain course of mercury, and the consequent removal of a chancre, blotches should appear, then, says Mr. Hunter, a disposition had been formed which no quantity of mercury could have destroyed. But the critics say, may we not with at least equal probability affirm, that mercury had been insufficiently used.

If, on the other hand, after such a course, no blotches should occur, the friends of the doctrine tell us, the second-

ry order of parts had not been contaminated. But in this it may be contended by the opposite party, that the mercurial course had been judicious and efficient.

Of the *modus operandi* of *Mercury*.

Mr. Hunter, in speaking of the nature of the venereal matter, regards it as a poison, which irritating the living parts in a manner peculiar to itself, produces an inflammation peculiar to that irritation, and from which a matter is produced peculiar to that inflammation. The good effects of mercury depend upon its exciting an action incompatible with that which existed, counteracting the venereal irritation by producing another of a different kind. Upon the principle, then, that no two morbid actions can exist at the same time in the constitution, is erected his views of the curative operation of mercury in Syphilis.

The theory here advanced, though not strictly tenable, is probably the most reasonable which has been delivered. That two morbid actions can exist at the same time in the constitution, is supported by the occurrence of small-pox and measles in the same individual, of whooping-cough during the eruptive stage of small-pox, small-pox combined with scarlatina, vaccination and measles.

But it is the most plausible on these grounds, because we know that mercury is a universal stimulus, causing great irritability of the constitution, making the heart to beat faster, and rendering the arteries more rigid, so as to produce a hard pulse. We also know that it produces a disease, or a peculiar and unnatural mode of action, changing the action of the extreme vessels, particularly the secretory vessels of the body, and it is to this double operation that its good effects may be attributed.

The theory of Mr. Bell is less tenable. It proceeds upon the supposition that mercury being carried into the constitution, combines with and neutralizes the matter of the disease.

This opinion is supported upon the experiment of the matter of lues venerea being mixed with triturated mercury, becoming inert and incapable of producing disease upon inoculation.

The assumption of such an operation is altogether gratuitous, and the venereal matter becoming inert, can be admitted only as a species of chemical agency upon inorganized materials, and will by no means apply to the organized animal body. If the operation of mercury depended upon this principle, the successful treatment of the disease would depend upon the quantity of the medicine employed. This is

at variance with the opinion of most practical men on the subject.

The operation of Corrosive Sublimate would seem to depend upon a very different principle.

Such is a concise account of the venereal disease, and of the manner in which it has been treated for the last century, and by many still at the present time.

It becomes our duty to state, that within the last few years, the propriety of employing mercury to the extent which has been done, in diseases of the genitals, has been questioned, it being asserted that many affections having a near resemblance both to the primary and secondary symptoms of syphilis, have been cured without the use of mercury. The subject has excited the attention of many distinguished surgeons, and the result has been a conviction, that the genital organs are subject to ulcerations, arising either from want of cleanliness, or from the acrid secretions of the parts. That these ulcerations bear a very close resemblance to syphilis, but may, in the generality of cases, be distinguished from it, the pathognomonic characters having been pointed out by Carmichael, Abernethy, and others, to whom we would refer you.

Though a similitude exists in some cases to a great degree, there are generally, some marks by which they may be distinguished.

They have not the character described by Mr. Hunter, but are less retorted at their edges, more shallow, more rapid in their progress, and pour out more abundantly an acrid discharge. Mercury internally seems to aggravate them, and the ulcers heal readily by the use of astringent washes and a purgative course. The practice, therefore, which has been recommended in cases which have not the decided Hunterian character, is to give up the use of mercury in the primary ulcers, treating them as if they were simple ulcerations, by cleanliness, rest, abstinence, and simple applications. *But if they remain open beyond a reasonable length of time, mercury should certainly be used.* The same principles are to be observed in the case of buboes and cutaneous eruptions.

The efficacy of this practice has been confirmed in our attendance at the Marine Hospital of this city.

In a very few cases was mercury employed, and then with a very sparing hand. The result has been very gratifying, inasmuch as the patients were restored in a comparatively short space of time, without those distressing effects which frequently follow the use of this article, or those tedious and painful complications which arise from other diseases being developed by the mercurial irritation.

1. Ulcerations of the penis have been treated as simple ulcers, by mild evacuants from the bowels, the use of astringent washes, the lunar caustic, simple dressings, a moderate and spare diet. By this course, with an occasional variation of the remedies, the local injuries of the genital organs have been healed in the course of a few weeks.

When they exhibited an indolence in their action, or continued open longer than is thought prudent or safe, they are then excited by the use of mercurials, externally employed, and occasionally internally exhibited.

2. Buboes, in their different stages, have been speedily reduced by the same means. In their inflammatory state, and even after suppuration had commenced, they have yielded to blood-letting, evacuants, repeated at regular intervals every other day, or twice a week, rest, and a recumbent posture, the use of cold applications or blisters, and a regulated diet. The most severe cases were relieved in five or six weeks.

3. Where buboes have ulcerated before admission, or a day or two after admission, the same course was pursued, and with effects equally gratifying.

Throughout, these affections which have so long been considered as arising from a specific virus, were treated as inflammatory affections of a simple character, and in no instance was failure or disappointment experienced.

When improvement did not follow this course after it had been pursued a sufficient length of time, then the mercurials were properly resorted to.

In *secondary affections*, a non-mercurial course, or a very sparing use of mercury, was pursued. In only one case admitted during our attendance, the internal employment of mercury created much distress from the general irritability of the system, and particularly the digestive. In this opiates were necessary with the use of the vegetable alteratives, and the external employment of the mercurials as a dressing to the ulcers, until an action was manifested on the gums. Under this cautious use of mercury, combined with the vegetable alteratives, a healing action was established, and ulcers which would have been extremely tedious and obstinate under another course, speedily cicatrized.

At this stage, let me digress a little from the subject, and state to you, that when from the proper and sparing use of the mercurials a healing action is not set up or established, we recommend that these remedies be discontinued, and other alteratives employed, and under these circumstances we would strongly recommend to your attention some of the preparations of Iodine, particularly the Iodide of Potassium, or Iodide of Iron.

Secondary symptoms, from this non-mercurial practice, were not seen, or they did not occur before the patients were discharged.

It should be noticed, further, that these symptoms follow in pseudo-syphilitic cases, as in true syphilis. They are said to occur more frequently, and appear at an earlier and more determinate period, than when mercury has been used, but they, in many cases, have gone off as soon. Never, as has been supposed, proceeding from bad to worse, or from one succession of parts to another in unabated violence—On the contrary, they do not exhibit the same violent and unrelenting symptoms which have been observed when mercury has been used.

Chances of secondary symptoms.

If the primary sore be destroyed during the first six days of its existence, no secondary symptoms will follow.

If six months elapse after the cure of a chancre, (no mercury having been exhibited,) without the appearance of secondary symptoms, all fear of constitutional symptoms may be laid aside.

The practice above detailed, seems to be such as our present knowledge of the disease authorizes and prudence sanctions. It is the practice of several English Army Surgeons, as well as of Mr. Carmichael, and Mr. Abernethy. It was observed, as we have mentioned, by Astruc, more than one hundred years ago, that the venereal disease was milder then than upon its first introduction—the same remark may be made respecting the present appearance of the disease, and what it was in the time of Astruc.

Morbid effects produced from the use of Mercury.—The first is the Erethismus Mercuriale, the Eczema Mercuriale, and Hydrargyrum, all having allusion to the same affection.

The disease consists in an eruption on the skin, varying in appearance from a light rose color to a dark red, and even to a purple, accompanied with heat, itching, fever, headache, and gastric symptoms.

It commences about the scrotum, the inside of the thighs, groins, and spreads over the body.

Desquamation takes place on the fourth day.

Varieties in the disease.

That it is produced by mercury, is proved by this circumstance—that mercury aggravates the symptoms of the complaint—that it will cease upon its being discontinued, and reproduced by too early a recurrence to the medicine.

The causes—Sometimes dependent upon a peculiar idiosyncrasy of constitution, obnoxious to mercurial remedies.

A certain state of the skin, also favorable to the production of the disease.

When these predisposing causes exist, a very small quantity of mercury will excite it into action.

Treatment—All mercurials to be discontinued, for it is remarkable, as soon as mercury shows its morbid effects, its anti-venereal powers cease—remove the patient from the apartment in which they have been exhibited—advise tepid bathing, and some gentle purgative.

Salivation, another of the morbid effects of mercury, and sometimes by its violence a more distressing disease than the original complaint.

Salivation, though not necessary to the curative operations of mercury, is, in the opinion of most practitioners, a desirable effect of the mercurial practice. Those very profuse salivations which were at one time thought so essential for the full attainment of its beneficial effects are now happily abandoned, and physicians in all cases would be satisfied with only a moderate sialagogue operation. This, however, cannot always be obtained for the reasons stated.

The only mode to prevent these effects, is to exercise great caution, to watch the progress of symptoms, and to observe the *rules* advanced upon this subject.

To these rules we would add, that we prevent the severe effects of salivation, by attending to the constitution of patients who are under our care. Mercury is improper in every system submitted to medical treatment. It is badly borne by persons of delicate habits, those in whom the nervous temperament prevails, and possessing much mental, as well as corporeal excitability. It is generally better borne by males, than females—by the active, than the sedentary—by the well, than the badly fed—and it is better borne by the hardy inhabitant of the country, than by those residing in cities.

The Sialagogue operation of mercury is generally very severe in persons somewhat advanced in life, whose constitutions have been impaired by previous attacks of sickness, and who are, therefore, weak and enfeebled.

The Sialagogue operation of mercury, should not be attempted in young persons under twelve years of age, for a similar inequality exists at this period of life between the strength of the impression, and the resistance which the soft parts oppose.

When the disease is formed, the first object is the mitigation of pain. This is done by the use of gargles, as a solution of opium in water or milk, a strong infusion of green tea, a solution of the acetate of lead, to which is added a portion of laudanum.

Emetics have been considered useful in counteracting the inordinate effects of mercury. They have been said to have succeeded in arresting inordinate salivation, and the progress of gangrene.

Cathartics—Sulphur—Blisters as counter-irritants, iced water, leeches, cooling applications.

The use of the Chlorate of Potash internally, and as a wash for the mouth.

When sloughing exists—

Pyroligenous acid diluted with water—a solution of the Chloride of Soda or Lime—Spirits of Turpentine, rubbed up with mucilage—a decoction of the root of the *Rhus Glabrum*.

The third object is to restore the tone of the parts. This is done by astringent gargles, as red rose leaves, red oak bark, a decoction of galls, with a small portion of honey and alum.

To the consideration of Mercury, *Iodine* may properly succeed, as it is allied to it so closely in its operation and effects.

IODINE.

THE simple substance Iodine was discovered in the Soda derived from the incineration of certain marine vegetables, by Mons. Curtois, in 1813.

Its properties were investigated by himself, but principally to Sir H. Davy, and Gay Lussac, do we owe much of our knowledge of the chemical habitudes of Iodine.

Physical properties—

It is a soft, friable, opaque substance, in the form of crystalline scales.

Color, bluish black, metallic lustre.

Odor, resembles chlorine very closely.

Taste, hot, acrid, pungent.

Its effects upon the system—

It is stimulant in its operation, and acts also upon the lymphatic system—is alterative in its operation, and allied to mercury.

When carried to a great extent, very considerable emaciation takes place, and the gland of the mamma undergoes a considerable diminution in its volume.

It is absorbed into the system, can be detected in the blood, in the urine, in the perspiration.

Operation of Iodine upon the Stomach.

In moderate doses it occasions a slight sensation of heat in the mouth and throat, with thirst, pains in the abdomen, with diarrhoea.

To these effects are added, a disturbance of the other organs, particularly of the brain.

In larger doses, all the symptoms of gastritis, with accelerated pulse, heat of skin, tenderness of the gums, with redness and separation from the teeth, with increased discharge of saliva.*

In very large doses, the disease called Iodism or Iodosis.

Given in proper doses, it stimulates without exciting irritation.

They act upon the mucous surfaces, and upon the different organs.

It gives activity to the circulating system.

It increases the appetite, and improves the vital powers generally.

Peculiarities in the operation of Iodine.

It bears a general analogy to mercury in its application to tumors, enlargements of glandular bodies, thickenings of the tissues.

It is better adapted to chronic and long protracted cases.

It is often beneficial in these after mercury has failed, or when it cannot be persisted in.

It is inadmissible in Febrile and Inflammatory complaints with vascular excitement.

It exerts a less permanent influence over the secretions than mercury, and when they are defective, and are to be restored, it is less to be depended upon than mercury.

In some specific diseases where mercury has ruled triumphant, much experience with the preparations of Iodine has evinced their greater safety and efficacy.

Its application to diseases—

In Bronchocele.

In enlargements of the lymphatic glands.

To discuss Tubercles in the Lungs.

In Asthma.

In chronic Inflammation, induration, and enlargement of the Liver.

In enlargement of the spleen.

In derangements of the Uterine Secretions, as an Emmenagogue.

Antidotes—It is easily and readily rendered inert, by a solution of starch, with which it unites, and is then but little soluble. To allay irritation, milk, albumen, and a solution of gum arabic may be employed, with the use of opium.

In Leucorrhœa, Gonorrhœa.

In diseases of the Fibrous system, Rheumatism, and of a Syphilitic character.

In the Secondary and Tertiary forms of Syphilis.

In ulcerations of the skin.

In Cutaneous eruptions.

In Indolent Ulcers with a sloughy surface.

In Ulcers occurring in scrofulous constitutions.

In Cancerous Ulcerations and in Lupus.

In Chilblains.

In Erysipelas.

As an Injection in Hydrocele.

Forms of administration—

1. In Pills, rubbed up with any tenacious substance.

Dose, half a grain, night and morning.

2. In Tincture—

℞. Iodine, grs. xlviii.

Spirits of Wine, ℥i.

Dose, xxv. grs. for adults, two or three times a day, in sherry wine, or sugar and water.

3. In solution of Hydriodate of Potash, or more properly Iodide of Potassium.

℞ Iodide of Potassium, grs. xxxvi. to ℥i.

Distilled water, ℥i.—The dose as the Tincture.

4. In solution of the Induretted Hydriodate of Potash.

It is formed by adding Iodine, grs. x. to the above.

The dose vi to x. m., three times a day.

During the administration of the Iodine, care should be taken not to combine it with substances likely to decompose it, and not to give it when the stomach is loaded.

The use of the medicine should be occasionally suspended, on account of the supervention of unpleasant effects from it, and a dose of magnesia, given on the day of its suspension, with the view of cleansing the primæ viæ.

Lugol's Solution—

Called also Ioduretted mineral water of Lugol, made by him of three different degrees of strength.

No. 1.

No. 2.

No. 3.

Iodine, gr. $\frac{3}{4}$.

Iodine, gr. 1.

Iodine, gr. $1\frac{1}{4}$.

Iodide of Pot., gr. $1\frac{1}{2}$. Iodide of Pot., gr. 2. Iodide of Pot., gr. $2\frac{1}{2}$.

Distilled water, ℥viii. Distil'd water, ℥viii. Distilled water, ℥viii.

When sweetened it is readily taken by children, but sugar should be added at the time of administration, as in the course of a few days it effects a chemical change in the solution.

From six to eight ounces may be taken daily by an adult,

Iodine Ointment—

Is made as follows :

R. Iodine, $\frac{3}{4}$ i.

Lard, $\frac{3}{4}$ i.

A scruple to be rubbed into the affected part.

Or,

Iodide of Potassium, $\frac{3}{4}$ ss. to $\frac{3}{4}$ i.

Lard, $\frac{3}{4}$ i.

The size of a small nut to be rubbed on the affected part.

Iodine Liniment—

Prepared by adding the Tincture of Iodine to Soap Liniment in the following proportions :

R. Tincture Iodine, $\frac{3}{4}$ i.

Soap Liniment, $\frac{3}{4}$ i.

To be rubbed over the tumor once or twice a day, in a small quantity.

This preparation has the advantage over the ointment, that evaporation is prevented by keeping it in a stopped phial.

When practicable, our method of using Iodine externally to tumors, buboes, etc., is to apply a blister to the part—and after two or three days, when the soreness of the blister is diminished, to direct a plaster of the Iodine Ointment to be applied. It occasions much smarting and irritation, and cannot be resorted to earlier, but the effects are highly beneficial.

Iodine Vapor—

Employed in this form in Inhalations into the Lungs, in the treatment of Phthisis Pulmonalis, Chronic Bronchitis, united with Cicuta.

Iodine Baths—

Employed in this form for children and adults in the treatment of Scrofula.

Combinations of Iodine with mineral substances.

1. *Ioduret of Ammonia* has been employed in cases of Lepra and Psoriasis.

2. *Iodide of Barium* in similar cases, and in Elephantiasis.

3. *Iodide of Sulphur*, principally employed in the form of ointment in various diseases of the skin.

4. *Iodide of Arsenic* has been employed in Lepra, Impetigo, and diseases resembling Carcinoma.

5. *Iodide of Lead* has been used to reduce indolent tumors, especially enlargements of the cervical, axillary, and mesenteric glands. It has also been used externally for the purpose of subduing dropsy, and has been regarded as one of the most energetic and valuable of the preparations of Iodine.

6. *Proto-Iodide and Deutio-Iodide of Mercury*.—These preparations have been employed in all the cases in which Iodine is useful, and even where the other combinations have been

unsuccessfully given. They are employed internally and externally, in the form of ointment, in diseases of the bones and their articulations, and in all cases of external scrofulous diseases.

Iodo-Hydrargyrate of Potassium—combining the properties of two very active articles, might be considered of great value in many diseases.

In *Dyspepsia*, diseases of the liver, enlargements of the spleen, dysmenorrhœa, glandular enlargement of a scrofulous character, dropsies, etc., it is better suited, and may be employed in all cases.

Iodide of Iron has been employed as a tonic and resolvent, in cases of debility, accompanied with a relaxed condition of the solids.

Adulterations.

COD LIVER OIL.

THIS article may properly succeed to the consideration of Iodine, containing, as it does, with this principle, Chlorine, and traces of Bromine.

This remedy, which has lately acquired reputation in the treatment of Pulmonary Consumption, and diseases of scrofulous habits, is obtained from the livers of the codfish. Preparation.

It should be prescribed as free from taste and smell as can be procured as it existed in the cells of the liver of the healthy fish, without contamination by any process of putrefaction, roasting, boiling, or the like.

Properties—Stimulant, alterative, antacid, and nutrient, exerting an action upon the lymphatic and capillary systems—increasing the functions of secretion and excretion, and improving nutrition.

It also replenishes the blood with an energetic and rich plasma, and promotes the absorption of scrofulous tumors.

Uses of the Cod Liver Oil—

In *Pulmonary Consumption*, according to the experience of Prof. Williams, of the London University, its use has been followed by marked and unequivocal symptoms of improvement—the improvement varying from a temporary retardation of the progress of the disease, and mitigation of the distressing symptoms, up to a more or less complete restoration to apparent health.

The stage of the disease in which decided and lasting improvement has occurred, is that usually termed the second stage.

But the most striking instances of the beneficial operation of the oil in Phthisis, is to be found in cases of the third stage. The relief, though decided, has not always been permanent, and the patients have again declined, and the disease terminated in death.

The results of various trials of the cod liver oil, even as a palliative, give it a rank far above any other agent hitherto recommended.

To the medicinal properties of the oil must be added, that it is a highly nutrient material.

Another remarkable effect of the oil, in some cases of scrofulous disease, with extensive suppuration, is the speedy removal of the sweats, and other symptoms of hectic fever.

In its use, it rarely disturbs the stomach or bowels, or the functions of the liver.

The dose of the oil is from ʒ i. to ʒ ss. in some pleasant flavored liquid, as diluted orange wine, or the infusion of orange peel, or cherry bounce, and repeated two or three times a day.

In the instances which have fallen under our experience in the use of the oil, have been favorable to its action, relief having been afforded in some cases, and a removal of the cough, and other symptoms of the disease in others.

In *Chronic Coughs*, associated with much Hepatic derangement, dark complexion, heat of skin, with disordered alimentary functions, relief has been afforded in a very few days to all the symptoms, and the patient much improved.

In *Bronchitis*, similar beneficial effects have been derived—and in a case of *Asthma*, which fell under our notice, the most decided advantages were obtained, after many other remedies had failed.

Useful in *Tertiary Syphilis*, in persons of strumous habits.

In *Chronic Rheumatism*, it has succeeded beyond the fondest anticipations.

In various *Cachectic* diseases dependent upon, or connected with scrofula, it has been employed, as *Rachitis*—*Malacosteon*, caries, diseased joints, curvature of the spine, and general deformity of the osseous system.

In *Cutaneous* diseases, attention has been drawn to its use. The cases are *Tinea Favosa*, *Impetigo*, *Chronic Eczema*—used internally, and as a topical application.

In *Tinea Capitis*, that very obstinate disease of children, we have succeeded most happily in a case of several years continuance, by anointing the head with the oil twice a day, previously washing with soap and water—the internal use of the article being conjoined.

In *Chronic Inflammation of the Eyelids*, of much obstinacy, the external use of the oil has been highly beneficial.

DIVISION 10.

EXPECTORANTS.

Medicines which promote the Secretion of the Bronchial Passages.

THE organs communicating with the external air, are lined with a membrane of a thin and delicate structure, which pours out a mucous secretion. This fluid constantly lubricates the whole of its surface. It is limpid, mild, and nearly insipid, or rather saltish, and of little tenacity in the natural state. It is produced in so small a quantity in a state of health, that it seems to be dissolved by the air, and thus to pass off insensibly in expiration, or to be taken up by the absorbents. Under various circumstances it is poured out much more abundantly, and is altered in color and consistency; it is then expelled by the expiratory efforts which constitute cough. In its natural state the membrane is white, and but few marks of vessels can be seen upon it, but in disease, vessels are developed, and become perceptible, particularly in catarrhal affections to which this membrane is very subject. The blood is then accumulated in the capillaries, and gives to the membrane a red color. The increased secretion which takes place is one of the terminations of inflammation by resolution, being a species of depletion which the vessels undergo, and the good effects of which are familiarly illustrated in the discharges from the nostrils, which follow inflammation of the schneiderian membrane. To promote this discharge from the lungs and trachea, is the object of this class of medicines. There is frequent occasion for such remedies, since the lungs and trachea are frequently irritated by mucous, which is either distressing from its quantity, or by its density and tenacity. It is not surprising then, that physicians in search of such remedies, administered many medicines with this intention. But it is not agreed whether any medicines possess a specific power of promoting the secretion or expectoration from the lungs. The principal object in attempting to facilitate the discharge of the contents of the bronchial vessels and cells, must consist in changing the *nature of those contents*, so as to render them *thinner*, less *tenacious*, and more *movable* than before. Whether we are possessed of any medicines capable of producing such a direct effect, may admit of a question. The generality of writers on the *Materia Medica*, and of physicians, speak of the utility of such medicines as they have termed *Attenuantia* for this purpose, but we may believe with Dr. Cullen, that their hypothesis on this subject is altogether erroneous, and that no such medicines

exist. The only probable explanation of the action of an expectorant medicine appears to be, that by increasing the secretion from the exhalent arteries in the lungs, the mucous may be diluted and rendered less viscid, and the passages from the cells may be more fully moistened with a less tenacious fluid. We know that there is a constant and considerable exhalation of moisture from the lungs; and there are many reasons for believing that this is an excrementitious secretion, connected with the other excrementitious secretions, particularly with the perspiration from the surface of the body. If, therefore, there are medicines disposed to pass by perspiration, it may be presumed that the same are disposed to pass by the exhalents of the lungs; and this exhalation may not only be increased, but the mucous produced by the follicles may also be poured out in a less viscid form, and consequently in a state to be more easily brought up by expectoration. Such is the most reasonable explanation of the action of this class of remedies. In its application much latitude is allowed, and a variety of articles of diversified characters are employed, according to the different states of the lungs, and the circumstances which promote an increase of their secretions, or their discharge. Where much inflammation of the membrane of the trachea and lungs exist, denoted by a dry and irritable cough, sense of fulness of the chest, dyspnœa, all of which denote an increased determination of fluids to this part—depleting remedies, by reducing action, and allowing secretion to take place, gives relief to many of these symptoms. This state of the lining membrane is familiarly illustrated in a similar affection of the membrane of the nostrils, producing what is commonly called a cold in the head. Here the membrane is thickened by inflammation, and the passage of air through the nostrils impeded. The uneasy feelings thus produced are allayed, and speedily carried off by the discharge which takes place.

Expectoration is promoted by medicines which produce an action upon the stomach. This would seem to depend upon the production of nausea, exciting as it does an increase of the cutaneous secretions, and in like manner, an increase of the thinner secretion of the lungs. For nausea, by means of that singular consent between the stomach and many other parts, may either relax the spasm of the very minute secretory and exhaling vessels of the lungs, or excite them to more vigorous action, when the mucous becomes at once more copious and healthy, and its expectoration more easy. The same effect is produced more completely by the operation of an emetic, which agitating the passage of air through the

bronchiæ and its ramifications, expels much mucous which is collected in many diseases, and affords often great relief to the system.

Expectoration is promoted by various stimulating substances, which, by irritating the fauces and upper part of the larynx, and the system generally, excite the muscles of the thorax and diaphragm to convulsive contractions, which expelling the air of the lungs with some rapidity through the windpipe, mucous collected in it is discharged. Expectorants of this nature are best adapted to the chronic coughs of old people, when with the accumulation existing, there is a deficiency of muscular power to effect its expulsion.

Under the class of expectorants is included various mild, gummy and mucilaginous substances—such as spermaceti, gum arabic, flaxseed, liquorice, tragacanth, etc. This class is most useful when the mucous is too thin and acrid, and when there is a frequent and almost dry cough, with great irritation of the lungs and branches of the bronchia. They are, therefore, more properly, demulcents, but since they allay irritation, and thereby allow the mucous to be collected and then expectorated, they may be comprehended under this division. There has been some dispute about the action of these substances—some suppose that they produce their good effects by being received into the blood and conveyed to the lungs, while others suppose that it is only during deglutition, by lubricating the fauces and glottis, and by this means defending them from irritation, that relief follows their use. This at least is certain, that many of them so suddenly allay the cough and remove the irritation, previously very troublesome, that it is utterly impossible that they could have reached the affected parts by the blood. But the cough being allayed, and the agitation of the lungs consequent upon it being for a while composed, the mucous, which was present in the lungs and trachea, is allowed to collect and become inspissated, and the strength of the patient being in the meantime somewhat restored, it is easily and copiously ejected with the first cough that occurs. Nothing more remarkable points out the connection of various parts of the system than the preceding circumstance; that an impression of a soothing nature being made upon the fauces and glottis, should be sufficient for a time to allay irritation of the pulmonary system, and lessen coughing. The fact is such, and in the cases to which allusion was made, the benefit afforded by these substances is very considerable.

There are yet other means of exciting expectoration. Blisters applied to the breast, side and back, not unfrequently

manifestly promote expectoration. Their operation seems to consist in lessening inflammation, relaxing spasm, and promoting a more equal distribution of the fluids.

The steam of warm water inhaled into the lungs, by promoting the exhalation and secretion of mucous, which it also dilates and attenuates, renders the expectoration more easy and prompt, and on many occasions answers valuable purposes.

PARTICULAR EXPECTORANTS.

In particularizing the articles of this class, we shall follow the order pursued in considering their general operation.

Upon depleting remedies we need not enlarge further, as from what has been said when upon this subject, their operation is understood, as is their great efficacy in restoring secretions which have been suspended.

Of those whose action is upon the stomach, and which operate by increasing the pulmonary secretions.

Ipecacuanha.—The natural and chemical history of this article having been fully treated of, and its application to diseases, we shall only observe, that in small or nauseating doses, it is often of considerable benefit as an expectorant. For this purpose it is employed in catarrhal and pulmonic disorders, and in different states of these complaints, it appears to exert a decided action in promoting expectoration, particularly where the mucous membrane is dry and inflamed. It is seldom employed alone, since more is gained by the co-operation of these remedies than can be obtained by the exhibition of any of them separately.

The remarks which have been made upon this article may be applied with equal propriety to the Tartarized Antimony, given either in the form of powder or vinous solution, as in the following formula, for Pertussis, or Hooping-cough:

R. Salt of Tartar,	℥ i.
Water,	℥ vi. to ℥ viii.
Cochineal,	grs. x.
Antimonial or Ipecac, Wine,	℥ ii.
Paregoric,	℥ ii. m.

To be made palatable by the addition of sugar.

Dose, ℥ i. to ℥ ii. several times a day. To infants, according to age.

Scilla Maritima.—To the properties of this article which have been enumerated, must be added its expectorant. It is possessed of these in a considerable degree, and is perhaps more frequently resorted to than any other of this class. In the diseases of children connected with accumulation of mucous in the bronchial passages, and in their catarrhal affections, few articles are more deserving of attention, since to its action in stimulating the mucous follicles, and exciting more copious excretion from the lungs, by a small augmentation of its dose, emesis speedily follows, and with it the expulsion of the viscid matter which had oppressed the pulmonary system. In asthmatic affections, dyspnoea arising from similar causes, it is much employed, and is held in general estimation. In short, in all the pulmonic affections, after action has been reduced, it is found to be a very valuable medicine. It is rendered more useful when combined with the nitrate of potash, tartarized antimony, or ipecacuanha, and in asthma, or dyspnoea without fever, combined with ammoniacum, it is perhaps the best remedy we can employ.

In Hydrothorax occurring in persons of an advanced age, especially when there is chronic catarrh, asthma or cough, and the bronchial tubes are loaded with large quantities of viscid phlegm, expectorated with much difficulty, squills will be found highly beneficial, both as an expectorant, a diuretic, and by promoting absorption. In such cases it may be given in very full doses, so as to keep up nausea, which is conducive, in no small degree, towards a free excretion from the bronchial vessels.

In Pertussis it is very useful. Of the many formula recommended for the treatment of this disease, the following has in our hands afforded the most relief.

Syrup of Squills,

Ipecacuanha Wine,

Paregoric, each equal parts.

Of this a tea-spoonful is a dose, taken five or six times a day.

The preparations of squills used are, the oxymel, vinegar, and tincture. The two former are generally preferred, because the other ingredients with which the squill is combined, seems to add to its virtues. The tincture is, however, recommended by many.

The following forms a very useful pectoral mixture in most cases :

R. Syrup of Squills,	℥ ss.
Honey,	℥ i.
Elixir Paregoric,	℥ ii.
Antimonial Wine,	℥ iii.
Laudanum,	℥ i.
Water,	℥ iv.

A dessert-spoonful to be taken with a little honey, every two or three hours, or oftener if required.

Or,

R. Syrup of Squills,	$\frac{7}{8}$ ii.
Spts. Ether Nitros,	$\frac{7}{8}$ iss.
Camph. Tinct. of Opium,	$\frac{7}{8}$ ss.
Comp. Syrup of Squills,	$\frac{7}{8}$ ii. mix.

For an adult, 3 ss. to 3 i., four or five times a day.

Syrupus Scillæ Compositus—Hive Syrup.—A combination of Seneka Snake Root, Squills, Tartarized Antimony, boiled in water and made into a syrup. Thus combined, a preparation has been made by Dr. Coxe, of Philadelphia, and introduced in the American Dispensatory as an officinal article. The efficacy of these articles is much improved by their union, and in cases of croup, and others, where expectorants are required, in doses so regulated, as to produce an emetic or expectorant operation. Very great benefit has been afforded in many cases, and for these purposes the preparation is well deserving your attention.

For the manner of preparing this medicine, we refer you to Coxe's Dispensatory.

EXPECTORANTS WHICH OPERATE AS STIMULANTS.

FAMILY Umbelliferae—Dorema Ammoniacum—Gum Ammoniac—Is a concrete, gummy, resinous juice, which oozes from a plant of the umbelliferous kind, growing in Egypt, Turkey, and the East Indies. It is found in the shops in masses, formed of drops or tears, which are white within, yellowish without, easily fusible, somewhat bitter and nauseous, and of a sharp taste and smell. The white drops, or tears, are observed to change to a yellowish or brownish color, on being exposed for some time to the air. It is often met with in the shops, mixed with much foreign matter, as wood, small stones and sand. From them it is separated by softening or dissolving it in a little boiling water, washing it while hot through a strainer, and then inspissating it to its former consistence. For internal use, the larger and finer tears, unpurified are preferred to the common strained gum.

The virtues of Ammoniac have been considered more various than experience justifies. It has been commended for its anti-spasmodic and deobstruent properties, neither of which does it possess in any degree. As a stimulating expect-

torant it is better known and appreciated, and it is only in this point of view that it can be considered entitled to our attention.

In various Pulmonary affections, when the lungs are oppressed by viscid phlegm, in chronic catarrhs, in asthma, particularly in the pituitary or humid, in pneumonia, after action has been reduced, and in peripneumonia notha, it is often of essential service in promoting expectoration and relieving respiration. In these diseases its powers are very considerable, and its efficacy such that it deserves the first place in this division. Triturated with water it forms a milky liquor called lac ammoniac, in this state it is more active than when administered in pills. The following formula is the usual mode of administering it :

R. Lac Ammoniac,
Cinnamon Water, each $\frac{3}{4}$ ii.
Syrup of Squills, $\frac{3}{4}$ ss.
Elixer Paregoric, $\frac{3}{4}$ ii.—ft. mistura.

The dose is a large tea-spoonful, which is to be repeated until relief is obtained.

Dissolved in a diluted solution of nitric acid, it is employed in cases where large accumulations of purulent or viscid matter exists, with feeble and difficult expectoration. The formula is as follows :

R. Nitric Acid, $\frac{3}{4}$ ii.
Water, $\frac{3}{4}$ viii.

This is poured upon Gum Ammoniac $\frac{3}{4}$ ii., and rubbed down until a solution is made—of this a small quantity is taken as often as is necessary, mixed with any mucilaginous fluid.

Polygala Seneka.—Is also a very useful stimulating expectorant. It has an unpleasant and somewhat acrid taste. After chewing, it leaves a sensation of acrimony in the mouth, and still more in the fauces, if it has been swallowed. It is probably owing to the particular irritation of the Seneka in the fauces, the sensation of which is compared to a burning, that the discharge of mucous which takes place, is attributable—since during its existence much is brought up by hawking. The powers of Seneka as an expectorant, are as well established as those of any other medicine. It has for this purpose been employed in several affections, and the reputation it acquired has been well sustained in subsequent trials with it. Introduced as it had been upwards of eighty years since, in the treatment of pneumonia, it is still employed with advantage in pneumonic affections, and most practitioners are agreed upon the decidedly good effects often following its use. The stage of the disease to which it is best adapted is

more clearly defined, and it is now considered that it cannot be employed to the exclusion of other active remedies. When these, therefore, have been pursued to a proper extent, and the patient continues oppressed with a dry cough, or difficult expectoration, a decoction of this article may be resorted to with much advantage. It is also useful in croup, as a secondary remedy, and when employed, the decoction should be much stronger than is usually given. The mode of preparation is as follows :

R. Seneka Snake-Root, coarsely powdered, $\frac{7}{8}$ ss., boil it in $\frac{3}{4}$ viii. of water to $\frac{3}{4}$ iv.—of this a tea-spoonful is to be given every half hour or hour, as the urgency of the symptoms require.

Of this strength it is decidedly expectorant, and it may also excite emesis. The decoction is the best form of administering the Seneka, though the tincture is often useful, in combination with other articles. In ordinary cases, the strength above directed is greater than necessary— $\frac{7}{8}$ ss. to a pint and a half of water, boiled down to a pint, is sufficient—To this, such other additions may be made, according to the indications, or the partialities of the physician.

The dose is $\frac{7}{8}$ ss. to $\frac{3}{4}$ i., until relief is obtained.

Lobelia Inflata.—See Emetics.

Family *Liliacæ*—*Allivum Sativum*—*Garlic*.—The virtues of Garlic are various. The whole of the plant possesses similar properties, but the root, which has a strong pungent odor, and a very acrid taste, is the only part employed in medicine. Of the many purposes for which it is recommended, we shall only speak of its Expectorant, which in common with other articles of the class *Aliacæ*, it possesses in a considerable degree. Its utility, in this respect, in the several forms of Asthma and other affections, unattended with inflammation, has been long noticed. Thus, Dioscorides mentions its use in moderate coughs. Celsus employed it mixed with honey in these complaints, and Rosenstein recommends it to be boiled in milk, and a pint to be taken night and morning. It is, however, not so much in repute among professional men as among unprofessional, with whom, made into syrup with honey, it is much employed in Catarrhal affections of long continuance, in Tussis Senilis, and in other cases, and very frequently with advantage. We have never had occasion to administer it, but have known of its employment in several cases with good effects.

A *Watery Solution of Assafœtida* has been recommended in pectoral affections, for its expectorant properties, and it has been much used in Pertussis, chronic coughs, &c. Its good effects rather depend upon its anti-spasmodic properties, and it is advantageously employed in all those affections of the lungs which are attended with spasm. The prescription is as follows :

R. Gum Assafœtida, $\frac{3}{4}$ ss.
 Water, $\frac{3}{4}$ iv.

The water is rubbed with the gum until a solution is made. To this is added

Tincture Tolut, $\frac{3}{4}$ ss.
 Laudanum, gtt. xxx., or xl.

The dose is a tea-spoonful to a child every two hours, and $\frac{3}{4}$ ss. to an adult.

There are several other articles that might be mentioned under this head, but they are either so uncertain, or so seldom employed, that their enumeration is unnecessary.

Of the properties attributed to Balsams, none are more ancient and commonly prevalent than those of healing or vulnerary. This idea appears to have arisen from the observation of their use when externally applied to a recent wound. If a wound is made on any part of the body with a clean cutting instrument, and the parts be brought together, and bound up with a rag dipped in any balsam, and left undisturbed for several days, it is a matter of common remark, that the wound will generally heal without any suppuration, by simple union of the divided parts. The same effect would be produced by any other substance similarly employed. Without regarding the effects which followed this approximation of parts, and the exclusion of external air, they were supposed to be possessed of healing powers in a peculiar degree. From their utility thus applied externally, their use was extended to internal affections. But scarcely a single circumstance which recommends their external application can apply to internal injuries or diseases. Their good effects as external remedies, depend upon the degree of topical stimulus, and probably the exclusion of external air, and hence the value which is set upon balsams as internal remedies is entirely lost. A languid, indolent ulcer of the kidney might, perhaps, be assisted by local stimulating remedies, but when the remedy must enter the stomach, and pervade all the vessels, be mixed with and diluted by the common circulating fluid, the remedy is no longer local, and the irritation which it produces is either counteracted during the circulation, or is equally diffused over the whole system. Balsams, therefore, are no longer

viewed with that partiality which the older physicians entertained for them, and repeated experience has shown them to be sometimes absolutely useless, and often positively injurious in internal affections of different parts for which they have long been celebrated. Used with caution, they may be beneficial in several diseases.

Family *Leguminosæ*—*Myrospermum Peruiferum et Toluiferum*—*Balsams of Peru and Tolu*.—From recent discoveries, it is ascertained that these balsams are obtained from the same genus, and are similar in their properties. The tree from which the balsam is derived grows in South America. It is procured by making incisions in the bark, from which it exudes in considerable abundance during the hot season. The balsam is of a yellowish brown color, transparent, in consistence thick and tenacious. By age, it grows so hard and brittle that it may be rubbed into a powder between the finger and thumb. Its smell is extremely fragrant, somewhat resembling that of lemons, its taste is warm and 'sweetish, and on being chewed it adheres to the teeth. In its composition it consists of an essential oil, a peculiar resin, and benzoic acid. It is this last principle which characterizes the balsams. In common with the other balsams, it has been much celebrated for its expectorant properties. It is less heating and stimulating, and may, therefore, be employed with more safety in pectoral affections than others. The cases to which it is adapted are similar to those to which this division has been considered best suited—only it is not often resorted to until vascular action has been much reduced, or where but little excitement exists. It is a useful addition to other expectorants, to which it often imparts vigor, and is, therefore, principally employed in combination. It may be administered alone, suspended in water by means of a mucilage or the yolk of an egg.

With it is formed the medicine sold in the shops, and known as Hill's Balsam of Honey. The formula is to be seen in Paris' Pharmacologia. We have found it very useful in chronic coughs, and the pectoral affections of old people.

Balsam Copaiva.—See Diuretics.

Having considered the manner in which expectoration is excited by medicines which exert their action upon the stomach, and by their stimulant impressions—we proceed to consider another division, comprehending those substances, which, by sheathing the upper part of the trachea with a bland and viscid fluid, allay that irritation which excites cough-

ing and by allowing the mucous to be collected, thus appear to promote expectoration. This division will comprehend the mild gums and mucilaginous articles, such as gum arabic, tragacanth, sugar, linsced, liquorice, tussilago, and the like. They are most useful when the mucous is of a thin and acrid quality, when there is a frequent and dry cough, with great irritation of the lungs and bronchiæ. There is some dispute about the action of these medicines. It had generally been considered by physicians, until the time of Dr. Cullen, that these substances act upon the lungs through the medium of the circulation. Thus the gum arabic, which is in very common use, was proved to extend its soothing qualities to the bronchiæ, and there to allay that irritation which excites coughing. It is, however, more probable that the articles of this class produce their good effects only during deglutition, and that by besmearing the fauces and glottis, they are defended from the various irritations which, in their irritable state, would excite coughing. In this condition of the membrane, deprived as it often is of the mucous which lines it, the air itself is often an irritant. That it is by supplying the absence of this natural covering, that these substances allay coughing, and remove the irritation previously so troublesome, is proved by the quickness with which the effect follows, and that in so short a period of time, as to render it impossible that the smallest quantity could have reached the affected parts through the circulation. The cough therefore being allayed, and the agitation of the lungs consequent upon being composed, the mucous which was present in the lungs becomes more abundant and inspissated, and the strength of the patient being in the mean time somewhat restored, it is easily and copiously ejected with the first slight cough which occurs. We now proceed to their particular consideration.

Family *Leguminosæ*—*Glycyrrhiza Glabra*—*Liquorice*.—This plant is a native of the South of Europe, and is also cultivated in Great Britain. The root is the part used in medicine, and it contains much saccharine matter joined with some proportion of mucilage. When boiled for a short time in water, it gives out nearly all its sweetness—the decoction then strained and inspissated with a gentle heat, affords the extract so commonly met with in our shops. The uses of this article are so well known, that it is almost unnecessary to enter upon the description. It is much employed in catarrhal and other pulmonic affections, in coughs, hoarseness, etc., and from its bland and emollient properties, is well adapted to all these cases. It is not often employed alone, but combined with a variety of other articles for greater convenience and

efficacy. The following formula, constituting what is called the Brown mixture, is very commonly employed, and is a preparation which is often beneficial.

℞. Extract of Liquorice,
 Gum Arabic, each, $\frac{3}{4}$ ss.
 Hot Water, $\frac{3}{4}$ viii.—simmer until dissolved.
 Antimonial Wine, $\frac{3}{4}$ iii.
 Laudanum, xl. drops.— $\frac{3}{4}$ ss. to be taken every two or three hours.

In this formula the anodyne co-operates with the mucilaginous articles in allaying irritation, while the determination to the surface excited by the antimonial preparation, completes the intentions to be fulfilled in pectoral affections, and thus furnishes us with a very valuable mixture in the secondary stages of these diseases. In milder cases the same articles may be given in the form of lozenges, prepared in the following manner :

℞. Powdered Gum Arabic,
 Powdered Extract of Liquorice,
 White Sugar, each, $\frac{3}{4}$ ii.
 Powdered Opium, grs. vi.
 Oil of Anniseed, gtt. iv.

To be divided into sixty parts.

One of these may be dissolved in the mouth three or four times a day, or more frequently.

This is the formula of Dr. Wistar, and which is very useful and convenient.

Or,

℞. Sugar,
 Powdered Gum Arabic,
 Extract of Liquorice, each, $\frac{3}{4}$ iv.
 Powdered Opium, $\frac{3}{4}$ iss.
 Powdered Ipecac, $\frac{3}{4}$ iss.
 Tinct. of Tolut, $\frac{3}{4}$ i.

Mix and make into a mass. Divide into lozenges of six grains each.

Powdered Liquorice Root is much employed in the composition of pills, and for disguising the taste of unpalatable medicines, which it does more effectually than any other substance.

Gummi Arabicum—*Acaciæ Veræ Succus*.—This valuable article is a concrete mucilage which exudes from the *Mimosa Nilotica*, or *Acacia vera*, a tree that grows abundantly on the sandy soil of Egypt and Arabia, or the rivers Senegal and Niger, near the Cape of Good Hope, and other parts of Africa. The gum exudes in a liquid state from the bark of the trunk

and branches of the tree, in a similar manner to the gum which is often produced upon the cherry tree, etc., of this country, and by exposure to the air it soon acquires solidity and hardness. The common appearance of this gum is so well known as not to require any description of it; the various figures which it assumes seem to depend upon a variety of accidental circumstances attending its transudation and concretion. That which is of a pale yellowish color is most esteemed; those pieces which are of a brownish or reddish hue are found to be less pure, and are said to be produced from a different species of *Mimosa*.

Gum Arabic is probably the most valuable of all the gums and mucilaginous substances in coughs, hoarseness, and other catarrhal affections, for the purpose of diminishing irritation, and supplying the absence of the natural mucous. On this account it is employed to allay the tickling sensation in the fauces, which so often excites coughing. It is, therefore, much resorted to in the formation of pectoral mixtures, and is a very useful adjuvant. It is combined, as I have already mentioned, with several articles.

Gum Arabic is employed to suspend in water a number of substances, which would not otherwise be kept equally diffused in this fluid. It is also used in rendering miscible with water the balsams, resins, fixed oils, and similar substances, whereby they may be very commodiously taken in a liquid form. This article is considerably nutritious—in the countries where it is native, it forms an important article of food, either by itself or mixed with milk, rice, etc. Hasselquist relates an instance of the travellers of a large caravan, who had consumed all their provisions in the middle of their journey, through the deserts of Africa, preserving themselves from famine by gum arabic, which they were carrying as merchandize.

Gum Tragacanth.—This is so nearly allied to Gum Arabic in its properties, that a particular description is unnecessary.

Family *Lineaceæ*—*Semen Lin*—*Flaxseed*—Is the product of the *Linum Usitatissimum*, a plant which is a native of Great Britain, but is cultivated in many parts of Europe and this country. It is a plant of great utility for purposes in the arts to which it is subservient. The seeds which it furnishes have an unctuous sweetish taste, but no remarkable smell. On expression they afford a large quantity of oil—boiled in water they yield much mucilage—the mucilage residing chiefly in the cuticle of the seeds.

Infusions and decoctions of these seeds, like other vegetable mucilages, are used in coughs, hoarseness, and pulmonary affections generally. They are of considerable benefit in many of these cases, and when sweetened with honey, and acidulated with lime juice or vinegar, are not very unpalatable. They may be drunk freely, and are useful in allaying irritation.

Besides the articles we have mentioned, there are several others which are much employed for the purposes already detailed, as almonds, spermaceti, mallows, the seeds of quinces, slippery elm, etc., which, as they possess only mucilaginous properties, need not be particularized further.

INHALATIONS.

HITHERTO I have been considering the articles which have been employed, and are, doubtless, of great utility in allaying irritation—in lessening the inordinate secretion from the lining membrane of the trachea and bronchiæ, and promoting its expectoration. Under the head of Inhalation, we advance a step further, and will bring to your notice remedial measures, which will change the morbid action existing, and substitute a new and healthier one, will promote the healing of ulceration, provided it has not extended into the parenchyma of the lungs—and by attacking the sources from which the bronchial discharges have issued, diminish and finally prevent them. The great utility of applications in promoting the curative action of ulcers situated on the external parts of the body, has frequently been noticed, and by a parity of reasoning we would be led to suppose, that if they could be made to the surface of the lungs in a manner adapted to their greater degree of irritability, similar good effects would result. Every day's experience convinces us that the improvement which takes place in the constitution of those laboring under pectoral complaints, by changes of climate, by long voyages, arise not more from the changes which are made in the circulation, than by the passages to the lungs being also stimulated, by new actions being excited, through their whole extent, and ulcerations healed which had long existed. From these circumstances, we may suppose that the dissemination of stimulating effluvia in the apartments of those laboring under pulmonary complaints, when the matter expectorated indicates that the ulcers evince a depraved condition, would be highly serviceable not only to cleanse the sores, promote

the healing action of their surfaces, and prevent or diminish acrid secretions—but that they would facilitate the expectoration of such matters as lodged in the bronchiæ, render the breathing oppressed and difficult.

The great object in the treatment of every disease, is to change the existing action, to direct our remedies in such a manner, that by their strong impress upon the system, their operation may be substituted for the diseased, and health be finally restored. This object can often only be effected by cautious, steady and persevering exertions, and in no diseases are these directions more necessary than in those of the lungs. The period in the disease for the employment of Inhalations, will be after the inflammatory symptoms have passed off, and the disease begins to assume the chronic form. By such means, strenuously and judiciously maintained, the most beneficial effects have resulted in chronic affections of the breast.

Inhalations of the mildest character consist of water in the state of vapor, either in its simple state, or containing other substances, with a view to a more stimulating action. In many cases these means are often of great benefit in promoting difficult expectoration, by relaxing the bronchial vessels, and occasioning thereby a more copious secretion, by which the viscid contents of the lungs are altered, and their liberation more readily effected. The vapor of water, or vinegar and water, inhaled through the spout of a tea-pot, or a funnel inverted over a bowl, or Mudge's inhaler, (for a good model of one, see Edinburgh Medical or Surgical Journal, No. 75) may be usefully employed in cases where these objects are desired, and the relief afforded is often very considerable.

The vapor of spirits has been much used in chronic ulcerations of the lungs with great advantage.

The Tincture of Digitalis, united with the vapor of water, has been inhaled in the lungs, either by Mudge's Inhaler, or by the use of the sponge.

Æther in which cicuta is dissolved has been long employed, where a stimulating expectorant and anti-spasmodic is required. Dr. Chapman speaks of the utility of this remedy with some confidence in dyspnoea and in pulmonary complaints. Of its utility I can say nothing, having neither seen nor known of its employment.

The fumes of terebinthinate substances have been employed in catarrhal affections, and in diseases of the chest more extensively, and from the various reports upon the subject, with effects highly salutary. From their less stimulating properties, they may be employed more frequently, and the occasions in which they may be resorted to, are more common than is supposed.

In conjunction with other remedies, the fumes of rosin are often highly beneficial in the catarrhal affections of children. They are often received with pleasure by the infant, and seem to produce an immediate improvement of the breathing. If the effect is not salutary, the patient may easily be removed beyond the influence of the fumes. The manner of administering the remedy is simply to fill a room with the smoke of rosin, and allow the patient to remain in it as long as is necessary.

The fumes of tar have also been employed in the same cases, and in Pertussis. In Pulmonary Consumption this article has been employed with success in Petersburg, Russia, and it is confidently stated that patients have been restored after their lives had been despaired of by the most eminent physicians of that kingdom. Sir Arthur Clarke speaks of its use in three cases of consumption in St. George's House of Recovery in Dublin, and he states from the experience he has had, the tar fumigation renders the cough less troublesome, and produces very salutary effects on the pulmonary system. The manner in which the fumigation is directed to be conducted, is to put the tar in an open vessel over a lamp or hot iron, so as to produce a slow volatilization, until the air of a chamber is well impregnated. In this atmosphere the patient may remain one or two hours together, two or three times a day. In a similar manner it has been employed in Pertussis, and its effects are spoken of in very high terms.

The inhalation of the effluvia from raw muscovado sugar, has been recommended by Dr. Chisolm in cases of Phthisis. He has known it produce a wonderfully soothing effect, which has in some instances become permanent. In the West Indies he recommends lodging the patient near a boiling house of a sugar plantation, or where this is not practicable, a small barrel, or even a basin, filled with the coarsest or dampest muscovado sugar, may be placed in the corner of a room occupied by the patient. In changing the climate, a sugar-laden ship should always be preferred.

Besides this mode of applying stimulating substances to the lungs, it has been proposed, and even practiced, to introduce into the lungs various articles in the form of powder. Dr. Darwin invented a box for the application of powders to the surface of the lungs, for the cure of ulcers, etc., and the practice has lately been revived by a practitioner in New England. The mode, however, of impregnating vapor with medicinal herbs has many advantages, and this more especially, since there are few substances, the active principles of which may not be dissolved and applied to the lungs through the medium of vapor.

Such are the remedies which have been commonly resorted to for the purposes of inhalation. It is a practice but little resorted to at present, much less than it deserves, and I hope that with the views which have been given of its operation, it may excite more general attention.

ANÆSTHETIC AGENTS.

Derived from the Greek of a primitive, and Aisthanomai, I feel.

Ætherization.—The following is a short account of the history of this discovery :

A knowledge of the effects of *Ætherization* does not appear to have been made known by the exertions of a single individual, but to have been brought into existence by the joint operations and discoveries of many. It has been well known, that various gases and factitious airs could be introduced into the lungs—and, at one time, this method of treating diseases was much in vogue—Dr. Beddoes having, in 1779, been chiefly instrumental in bringing this practice into notice.

In 1795 and 1796, Dr. Thornton recommended the inhalation of *Æther*, and it was employed by a patient laboring under pectoral catarrh, with relief from the oppression, pain, etc., in the chest—also employed in other cases, as in a painful inflammatory affection of the mamma.

In none of these cases was it carried to the extent of the abolition of pain.

Sir H. Davy seems to have contemplated such a result by medicamentous inhalation, and to have put it to the test of experiment. He employed the nitrous oxyd gas for this purpose. He also had recourse to it for headache, and for the relief of other diseases, as spasmodic asthma, catarrh, dyspnœa, hooping-cough ; also, to correct the unpleasant sensations caused by the inhalation of chlorine gas.

In 1841 and 1842, Dr. C. T. Jackson employed *æther* to obtain relief from the above accident, and to produce a peculiar sleep or unconsciousness, but a state of complete *insensibility* was considered one of great danger, and it had been known to produce fatal results. Dr. Jackson also suggested its use for the slighter, and instantaneous operations of the teeth.

Dr. H. Wells next claims the discovery. He had used the nitrous oxyd gas in the extraction of teeth, but his claims, as a discoverer, must yield to that of Sir H. Davy, who had sug-

gested the use of this agent for this very purpose, some years previous. His public experiments with the use of æther seemed to have been a failure.

Dr. W. T. Morton, of Boston, must next be mentioned. He had been a student of Dr. Jackson, and a partner of Dr. Wells. He became acquainted with the views of Jackson, and the experiments of Wells. He finds a patient who consents to permit him to use the æther, and extracts a tooth without pain. Though Dr. Jackson's views were favorable to the expediency and safety of æther, he does not appear to have had his countenance or support.

Dr. Morton follows up his first experiment, and the great truth is at last made manifest, that æther may be employed with safety, so as to produce insensibility during all surgical operations.

The world is indebted to Mr. Morton for this discovery, and in its progressive steps is indebted to Dr. Jackson's scientific knowledge and sound advice—and but for it, would not have been made at the present time.

Thus it would appear that Dr. Jackson suggested the use of æther, while Dr. Morton demonstrated by actual experiment the existence of this wonderful property.

Since the discovery has been made, anæsthetic agents have been used extensively in surgical operations and midwifery practice—also in several morbid conditions of the nervous system.

Administration of the Æther.—The horizontal posture is preferred, being the most favorable to ætherization, and it is most easily applied. When first administered, the tube and bottle were employed, but the sponge will be found most convenient.

It requires less effort to inhale it, and the atmospheric air introduced with the æther, removes the danger of asphyxia. The sponge should be of an excavated form, in order to accommodate the projection of the nose.

The sponge previously moist, is saturated with æther of the purest quality, and applied to the nasal cavities.

The volatility and combustibility of æther should be kept in mind when it is employed by candle-light.

The quantity of æther employed has usually been about two ounces, but we are to be more guided by the effects upon the patient, than by the quantity consumed.

The time required is from two to five minutes, though it may be prolonged in accordance with the length of the operation, and the difficulty of accomplishing the ætherization.

In important operations there is advantage in preliminary trials, to test the susceptibility of the patient, and to instruct him in the manner of its application.

The existence of ætherization is usually recognized by the closure of the eyelids, by the non-response to questions, and by muscular relaxation.

The pulse and respiration should be carefully watched, that when they fail, the process may be discontinued, and the face of the patient sponged with cold water—artificial respiration practiced if necessary. The stimulus of ammonia may also be employed—oxygen gas thrown into the lungs.

It should be administered fasting.

Uses of *Æther*—Dr. Warren, of Boston, is entitled to the distinction of having been the first to perform a surgical operation on a patient rendered insensible to pain by the inhalation of the vapor of æther. He has continued to use it in his practice to the present time, and furnishes the fruits of his experience with it in two hundred cases, in a small volume which he has published.

For his conclusions in the use of the article, refer to volume.

The point requiring most skill and care, is to know when ætherization has been carried far enough.

Effects produced by the inhalation—

The first symptom noticed is a short, dry cough, which impels the patient to remove the sponge—with a little persuasion he allows it to be replaced—he inspires the vaporous draught until he becomes insensible.

The respiration is often audible, and sometimes apoplectic, afterwards feeble, and almost imperceptible.

The pulsations of the heart are often hard and vibratory.

The muscular apparatus is excited at an early period.

The conjunctiva of the eye is injected with blood.

The brain is sometimes singularly affected, and the most curious changes produced in the sensitive and intellectual functions. In some cases the sense of feeling is suspended, while the intellect exists.

The principal symptoms disappear in half an hour—when an unfavorable influence is excited, it is exhibited in the form of asphyxia or convulsions.

The treatment consists in the suspension of the æther, and the free affusion of cold water.

Abuses in the use of *Æther*—

For the purpose of destroying life—for the accomplishment of a criminal purpose.

The following are the occasions in which ætherization may be resorted to:

In Dentistry	Tetanus,
Amputations,	Neuralgia,
Extirpations,	Strictures,
Fractures,	Lithotomy,
Operations on the Bones,	Cautery,
Dislocations,	Dysmenorrhœa,
Strangulated Hernia,	Midwifery.

CHLOROFORM—TER-CHLORIDE OF FORMYL.

It was discovered in 1832, by Soubreiran and by Liebeg.

Its composition and relation to other bodies investigated by Dumas and Flouriens, in 1842 and 1847.

The same year, Dr. Simpson discovered its most remarkable property as an anæsthetic agent, and applied it to various diseases.

Chemical History—Refer to the Professor of Chemistry.

Properties—

It is a transparent, colorless fluid, of considerable density, of a peculiar, fragrant, ætherial odor, and a sweetish taste—soluble in alcohol and æther.

It is often adulterated with alcohol.

Its medicinal properties are various—in large doses, a narcotic poison—in smaller, a stimulant, anti-spasmodic, anodyne, and anæsthetic.

It is not much employed internally as a medicinal agent.

When *inhaled* in doses of xx. to xxx. m. to ʒ i. dropped on a handkerchief, it occasions—

Whizzing and pulsations in the head—a change in the apparent color of objects—pleasurable visions and ideas—loss of consciousness, or semi-conscious state—soft sleep, etc.

Or,

Tendency to laughter and jocularity, or incoherent talking, or boisterous turbulence, resembling in its effects those of nitrous oxyd gas.

In large doses, coma is rapidly produced, with relaxation of the muscles, slow and stertorious breathing, with total insensibility.

Sometimes convulsive twitches about the mouth, frothing at the mouth, etc.

Insensibility may begin in fifteen seconds—it is seldom postponed beyond two minutes. If too large a quantity is inhaled, the lips become blanched, spattering at the mouth as one in Epilepsy, and the person in a minute has ceased to breathe.

To obviate these dangers—

It should be administered in the horizontal posture, and upon an empty stomach. Whenever the stomach is not in a state of emptiness, it produces anxiety and agitation.

The uses of Chloroform are numerous.

It has been substituted for the inhalation of *Æther*, to induce insensibility during surgical operations.

Some advantages over *æther*.

It is more rapid in its action, and more certain.

It acts in a much less dose.

It requires no nicer apparatus than a handkerchief.

It can be employed in the cases of children, in whom *æther* often can scarcely be made available.

Where there is a want of susceptibility to the narcotic action, after trying the use of *æther*, the more powerful impressions of chloroform have been exerted with good effect.

It has been employed to subdue the sufferings of child-bearing.

It produces no injurious effects upon the female.

It does not interfere with delivery.

Under its influence the uterus and abdominal muscles continue to contract.

The child is not affected by its use.

It may usefully be resorted to in cases requiring the use of instruments, or where it is necessary to turn the child.

Without being used to the extent of insensibility, in small doses it sustains the energies of the patient, and removes the despondency so often felt in these cases.

But though you have been informed that *Æther* and Chloroform are valuable anæsthetic agents, it is proper to state, that they are narcotic poisons of great power and rapid action. In small repeated doses, they produce agreeable exhilaration, and pleasing hallucinations. By merely inhaling chloroform from a bottle, the most delightful thrill over the whole frame is produced. They are carried by the blood into every capillary, and excite simultaneously every part of the frame.

Chloroform has been employed in all the cases in which *Æther* has been recommended, and by some preferred.

It should be used with caution, as death has in some instances been produced by it, and several cases will be found recorded in the journals. In some instances, it seems to have been produced by the too free use of the article—in others, a peculiarity of the system has existed unfavorable to its employment.

In some cases the cause of death would seem to be congestion of the lungs—in others, without any obvious cause. It

leaves us only the nervous system, independent of vascular action, or congestion, as the seat of the sudden change produced by the rapid passage of the narcotic principle to the great nervous centres.

The fatal phenomena occur suddenly.

In four cases death took place within a minute.

In two cases in two minutes.

Thus it would appear that the fatal issue is not a consequence of the quantity inhaled, nor yet of the time, but rather the instantaneous violence of the impression.

To the diseases mentioned in which æther is used, in all of which chloroform may be employed, we may add—Typhus Fever, Mania, Delirium Tremens, Asthma, Cholera, Obstinate Costiveness, and Tetanus.

Objections to Chloroform—the facility with which it may be abused.

The highly concentrated state of the toxic principle, the convenience with which the substance can be transported, the absence of the penetrating and diffusive property of Sulphuric Æther, favor its use in an undiscoverable manner.

Persons have resorted to it for the purpose of obtaining the pleasure of a temporary delirium. The number of persons who resort to it in this manner is probably very considerable, and leads to the belief that those who employ it in secrecy must be very great. The habit of taking it may be thus formed, which may lead to pernicious consequences.

The same objection may be made to æther, but in a less degree. Its volatility reveals its use. The quantity required is also such as to make it more difficult to conceal its employment.

CHLORIC ÆTHER.

In consequence of the accidents with the use of Chloroform, it has been recommended to be used diluted as in the above form.

Chloric Æther is the product of the distillation of Alcohol with the Chloride of Lime. It is Chloroform diluted with Alcohol. It has been employed without any unpleasant consequences at the time or afterwards. It has advantages over Sulphuric Æther and Chloroform—over Æther, in being less irritating to the lungs, the inhalation being more agreeable—Never produces headache in the operator and bystanders—Its narcotic power is equal to Æther.

It is more safe than Chloroform.

DIVISION 11.

EPISPASTICS.

THE idea of applying to the surface of the body a substance, which, by producing a considerable irritation, was calculated either to displace or equalize in any manner the force of morbid excitement, embraces one of the most important pathological principles in the practice of our profession. With whom it originated is not very accurately known, but the honor is most probably due to Hippocrates, since the idea is frequently expressed in many parts of his works. When applied to practice, it furnishes us with resources the most extensive in Therapeutics, and presents us with a very favorable specimen of the state of medicine in the days of ancient Greece. The substances employed by the Greek physicians, as Epispastics, were derived from acrid and irritating vegetables, from the actual cautery, and other means equally severe and pungent. It was not until the science was more advanced, that the more common practice, that of employing Cantharides, came into vogue—their introduction into the *Materia Medica* being attributed to Aretæus, a physician of judgment and learning, who flourished a little before the time of Galen. The method employed by him consisted in rubbing them on the part until a blister was produced. This method, I need not inform you, is now rejected, and the present mode of applying them did not prevail much in practice until the beginning of the sixteenth century. Disputes which existed respecting the employment of blisters in a plague which prevailed in Italy about the years 1575 and 1590, directed the attention of medical men more particularly to their consideration, and laid the foundation of a more accurate acquaintance with their virtues and operations.

The term epispastic, from the Greek word *epispao*, to draw, signifies applications which draw the fluids more copiously into the parts to which they are applied. It may, therefore, be considered one of pretty extensive import, comprehending not only blisters, properly so called, but *Sinapisms*, *Issues*, *Setons*, *Caustics*; each of these in their proper places, and in states of disease furnishing us with very important means in a curative point of view. Of these, however, blisters are the *Epispastics* most commonly employed, and they are so designated, because their most sensible effect is to determine upon the skin the formation of vesicles which are filled with humor of the color of amber. The manner in which this effect takes place seems to be by stimulating the arteries to an increased

secretion. This is evident from the symptoms which follow the application of a blister. The skin exhibits all the signs of great irritation—it becomes red and very sensible—the blood circulates with so much activity that it penetrates all the cutaneous capillaries, and the exhalation becomes more abundant. As the natural texture of the skin becomes altered, it is no longer permeable to the fluids which the exhalents carry off, the fluids therefore detach it from the *cutis vera*, they raise it, they accumulate under it, and form the vesicles which the blister plaster covers. This local action is not the only effect which the use of blisters offers to our attention. They exercise a considerable influence upon the system at large. The pulse becomes fuller and more frequent; the animal heat is augmented; many of the organs exhibit the effects of a stimulant impression, and evince, by their accelerated movements, that they are stimulated and irritated.

The *modus operandi* of blisters, in the cure of diseases, has been the subject of considerable discussion. By some it is contended that their beneficial effects are to be attributed to the local and general excitement, producing new determinations of the fluids, or altering and subduing morbid action. According to others, much of the benefits derived from blistering are attributed to the evacuations of serous fluids which follow their application. Without embracing either of these opinions, I may be justified in stating, that there are cases in which advantages are derived from all these modes of operating. That from their general operation, they are capable of rousing the powers of life, of communicating to the system an advantageous impression, and of giving to the circulation and the other functions more energy and activity. By this topical impression they are capable of changing the afflux of fluids upon a part which might become fatal, to displace a painful inflammation fixed upon an organ essential to life, and to render it superficial, exciting disease on a part of the body where it may exist without danger. That advantage is derived from the discharge, we infer from the beneficial effects which follow Issues and Setons, from the blistered surface becoming, in fact an excretory organ, to which not only an increased determination has been made, but by which the over-distended and inflated vessels are enabled to relieve themselves of their contents. "So long, therefore, as the discharge continues, so long will there be an especial demand for blood in the blistered part, and a consequent derivation of the circulation from the inflamed and engorged vessels of the neighboring organs. These different effects of blisters will be fully illustrated when I shall speak of their practical application.

The beneficial operations of blisters may be arranged under the following heads :

1. Where the actions of the system threaten to become too weak.

2. Where they are irregular.

3. Where they are partially too strong.

Under the first head their utility is manifested in the advanced stages of *Typhus* or other *Continued Fevers*. In *Typhus* fevers blisters become very useful, when the powers of the system show a tendency to prostration, when the contractions of the heart become languid, and the patient struggles under anxiety, restlessness, delirium, difficulty of breathing, &c. These symptoms are the result of rapidly increasing debility, and strongly point out the necessity of cordial remedies, with stimulating applications. Blisters seem to be best adapted to these cases as rubefacients. To obtain this effect their situation should be frequently changed, and after being applied four or five hours to one part, should be removed to another. They may be applied successively to the legs, the thighs, upon the arms, to the back, so as to renew each time their general action. It is under these circumstances, less the local impression which we desire, than the advantageous changes produced in the state of the circulation, and the other functions. Of late the delirium which so commonly attends in the advanced stages of this disease, has been considered as more effectually treated by blistering the whole surface of the cranium. In this disease the brain appears to be the organ which is chiefly disordered—many of the distressing symptoms which occur during its progress, having their origin either in the state of sub-acute inflammation which exists, or the state of congestion. The utility of blisters in such conditions is very decided, and the nearer that the application is made to the diseased part, the greater benefit will be derived. They will be found useful in determining from the part, and giving an impulse to the restorative powers of the animal economy.

In *Continued Fevers*, blisters, judiciously managed, are of great advantage. Without proper attention to the time in which they ought to be employed, they would be productive of much distress to the patient, without any relief following their application. As a general rule they are inadmissible in the commencement of these diseases, and their use should be deferred until the action of the heart and arteries has subsided. There is a state between the reduction of excitement, and the appearance of symptoms of prostration, in which they afford the greatest benefit. Morbid action seems in this state to have fixed itself, that the natural powers of the system are incapable of relaxing themselves from its thralldom.

These actions, from their continuance, seem to have established a kind of habit, which would run to exhaustion, unless their course was interrupted. It is in such states of Continued Fevers that blisters exert a renovating impression, and by changing the existing action tend greatly to subdue it. They are applied with most advantage to the calves of the legs, the inside of the arms, or the back of the neck. Such parts of the body being generally preferred as the most convenient, and from their situation and connections, those upon which the most favorable impressions can be made.

In *Remittent Fevers*, when they have been of long continuance, and the spirits and the pulse of the patient begin to flag, they have been successfully employed. Of their utility, Dr. Lind speaks in high terms, and observes that a remission soon follows their application. Dr. Rush, in his account of the bilious Remittent Fever of the year 1780, informs us that he always had recourse to blisters, if the fever did not intermit after the fourth or fifth day. They seldom failed of producing an intermission of the fever, the day after they were applied. He thought that more immediate good effects were derived from blistering the neck and behind the ears.

In some of the *Eruptive Fevers* the utility of blisters is particularly manifested. In the Small Pox, where the patient is of a lax and weak habit, when the pulse is low, feeble and depressed, and the fever insufficient for the expulsion and suppuration of the pustules, Epispastics are certainly indicated. Dr. Mead also observes, that whenever the maturation of the pustules does not regularly succeed their eruption, and when anxiety, inquietude, difficulty of breathing, and delirium come on, the fever should be quickened by warm cordials, and especially by the application of blisters. Many other authorities, as Sydenham, Morton, and others, may be adduced in favor of the good effects of blisters under such circumstances. They are useful not only in preventing unpleasant symptoms, but are capable of relieving them when present. They, as I have stated, not only promote the maturation of the pustules, but when the fauces are covered with them, and both deglutition and respiration are impeded by the swelling of the throat, blisters, when applied to the neck, are highly serviceable.

In the advanced stages of *Inflammatory Fevers*, when the patient becomes languid, and perhaps comatose, blisters are highly beneficial. They are found useful in relieving many of the symptoms of this state, particularly those obstinate and oppressive headaches, which have resisted every previous evacuation, and which often continue to the last period of the disorder.

These remarks sufficiently illustrate the utility of blisters in the diseases I have spoken of. The same observations are equally applicable in every other species of fever, where such a train of symptoms occur, as have been already described.

The *Second Division* of diseases in which the use of blisters is indicated, is where the actions of the system are *Irregular*. This division will comprehend a great variety of cases, in which, from unequal excitement, either of the nervous or vascular system, symptoms diversified, according to the seat of the irritation, will be produced. It is evident that under such circumstances they will manifest very decided and efficacious powers, since, if we deny to them all other modes of operation, at least we cannot dispute their tendency to restore an equilibrium in the irregular determinations of diseases. These remarks will be better illustrated in considering the diseases which arise from irregular action.

Convulsive diseases most commonly have their origin in some irritation of the cerebral system. They generally proceed from undue determinations of the vascular system to this part, or such a degree of irritability as to be excited into irregular actions by the usual stimuli of life. Whatever, therefore, will abstract from this organ, will seldom fail to afford relief, by lessening or destroying the sense of that irritation. Blisters, therefore, are indicated in such cases to stimulate and excite pain in a part of the body that is sound; for, according to the aphorism of Hippocrates, *Duobus doloribus simul abortis, non in eodem loco, vehementior obscurat alterum*.

In *Epilepsy* the use of blisters is too much neglected. Their utility is recommended by Hoffman, Mead, and other more modern writers.

Their effects are most beneficial when applied to the arms, and I have little doubt that their continued repetition would be of decided benefit.

In Convulsions which supercede the eruption of *Small Pox*, blisters act as powerful anti-spasmodics—but they should not on slight occasions, be employed in this state of the disease, lest by their stimulus they aggravate the fever, and increase the number of pustules.

In *Apoplexy*, in *Mania*, in *Hydrocephalus*, their beneficial effects are well established, and from the peculiar obstinacy of these cases, a single application is not sufficient, but they should be applied successively until the morbid action is subdued.

In those affections of the alimentary canal, designated by the names of *Cholera Morbus*, *Dysentery*, *Colic* and *Diarrhæa*, blisters cannot be too much commended. In no cases are the

sympathetic connections stronger, than between the skin and the mucous membranes. In these diseases of the internal coat of the alimentary canal, the powerful influence of blisters is well known. In cholera morbus and dysentery, the application of blisters should never be omitted. They considerably lessen the pain and spasm, however excruciating, by a diversion of it to another part.

In *Colic*, they afford quick and certain relief, and it has been observed by some writers, that very soon after their application, purgative medicines have more certainly produced their good effects.

In *Diarrhæas*, particularly of the chronic kind, they are greatly to be depended upon. I have seen the most happy effects from their use, and Dr. Rush speaks of the very essential benefit afforded by them in such complaints. They are most advantageously applied to the inside of the thighs, and they should be kept discharging for a considerable time.

The *Third Division* of diseases in which blisters are useful, is where the actions of the system are partially too strong. This division will comprehend all those cases in which there exists local determinations to particular organs, and other parts of the system. The frequency of these determinations must have struck your attention in your intercourse with the sick, and it is from their consideration that the divisions of diseases are founded, and upon them that systems of nosology are established. They constitute, therefore, the very essential point in the treatment of diseases. and it is to their relief that our care must be directed. The necessity of these directions will be obvious, when you consider that there is no constitution which has not its particular weak point, upon which the violence of disease is frequently expended. The utility of blisters will, therefore, be apparent, since they so well support the constitutional remedies which are employed, and lend such important aid to our means of cure. The cases which are comprised under this head, will consist of diseases connected with Inflammatory action.

Before proceeding further, we may inquire, at what *period* in Inflammatory diseases ought we to have recourse to these remedies. From inattention to this circumstance, there has existed much contrariety of opinion, as to the benefit conferred by blistering. For applied, as they too often have been, when the system labored under much arterial excitement, from the general operation of blisters already pointed out, they have tended to do harm; when applied after that action has nearly ceased, they do but little service. To be serviceable, therefore, they should not be employed until the Phlogistic diathesis has been so much reduced by depleting

remedies, that the irritation produced upon the skin, will, instead of proving a stimulus to the complaint, rather serve to counteract the excitement existing in other parts of the system, and by giving a centrifugal direction to the fluids, save parts essential to life. It is, therefore, by common consent agreed, that blisters are improperly employed before arterial action has been sufficiently reduced, and the excitement lowered to what Dr. Rush has called the *blistering point*. I should enlarge more upon this subject, but it is one which, from its importance, will be enforced upon you by the professor of practice.

The diseases of high local action in which they are applicable, are the *Pulmonic Affections*. In these cases our chief dependence should be upon bleeding frequently repeated, and we should avoid the early use of blisters. But when the disease has continued some time, when bleeding gives but little relief, the pulse becomes small, and the patient unable to bear further evacuations; under such circumstances Epispastics will produce remarkably good effects. If there be no particular pain, but only a general oppression, the vesicatory may be applied to the back, and afterwards, if the disease be obstinate, first to one side and then to the other. When thus applied, they will be found to relieve the chest, promote expectoration, and lower the pulse.

In *Inflammation of the Liver, Stomach, and Intestines*, one of the best remedies is a large blister applied over the part affected. They afford very great relief in such cases, and next to blood-letting, are the most valuable agents we can bring to our assistance.

In *Rheumatism*, blisters do much service, and should always be had recourse to. They create a diversion of the diseased action, and thereby mitigate those acute sensations of pain, and that stiffness which attends this disease. They should be applied over the part complained of and be repeated as often as occasion may require.

In the various *Anginose affections*, the utility of blisters is well established. In Sore Throat, in Croup, in Scarlatina Anginosa, and other diseases of these parts, they are confidently applied, and the great relief which arises from their use, entitles them to the consideration of very important means in the treatment of these cases. In the Scarlatina Anginosa, which prevailed in Philadelphia, in the years 1783 and 1784, Dr. Rush always derived great advantages from their use. He applied them to the neck, or behind the ears.

In *Erysipelas*, they are employed with remarkably good effects. In affections of the head and face, from this complaint, applied to the back of the neck, they have been highly

beneficial. When attacking other parts of the body, they are applied over the affected surface, and when this is very extensive, with a rapid extension of the disease, a strip of blister placed along the margin of the inflammation, is very efficacious in arresting its progress.

In *Ophthalmia*, the benefits conferred by this mode of deriving from the affected part, are well known.

Besides these diseases, blisters may be employed advantageously in many others, and particularly those of a local nature. To extend the further consideration of this subject would take up more time than is necessary, and we have said sufficient to impress you with the importance of the remedy. We shall merely add a few remarks upon the connections of the skin with the general system, as tending to enforce the importance of vesicatories.

The sensibility of no part of the system is more remarkable than that of the skin; this part of the body being truly said to be the theatre of various functions and phenomena, over which this extraordinary faculty presides without ceasing. The abundant sensibility with which the skin is possessed, seems necessary to support the activity of various functions which are continually in operation—to favor the course of the fluids in the capillary vessels—to promote the secretion of a sebaceous humor—to excite into action the processes of absorption and exhalation—to determine the exercise of the sense of touch, and to establish the sympathetic connections of the skin, with the internal parts of the body. Each of these functions would furnish us with ample materials for consideration, but it is only of the last that I propose to treat. The sympathy most commonly acknowledged is that which exists between the skin and the mucous membrane of the alimentary canal. This is obvious from the disgust, the nausea and vomiting, which follows the existence of various exanthemous disorders, and from various cutaneous eruptions being produced by substances taken into the stomach. It is evinced by the introduction of warm drinks into the stomach, favoring the function of exhalation upon the skin, and the introduction of cold drinks suspending, in a sudden manner, the same function. Upon the same principle, a bath taken at an improper period, often interrupts the digestive process.

A considerable sympathy exists between the skin and urinary bladder, and this connection is often taken advantage of in suppression of urine, relief being frequently afforded by causing the patient to stand upon a cold floor or marble slab. The connection between the skin and lungs is exhibited in the frequent metastasis of disease from this organ to the respiratory system. The connection between the skin and

brain is exhibited in the delirium which accompanies certain inflammatory eruptions, such as Small Pox, Measles, Scarlet Fever, etc. Lastly, there is a considerable connection between the skin and the genital system. It is well known that persons affected with the itch, with leprosy, and other cutaneous diseases, are often troubled with priapism, and an inordinate desire for venereal pleasures. Attention to these sympathetic connections of the skin, with all the living parts of the body, will render this subject doubly interesting, and will satisfy you that the importance of blistering has not been too much overrated. It will satisfy you that it is not only the local operation which is to be considered, but that by them great and important changes are promoted in parts of the body very distant, and seemingly but little connected. It shows the harmony and order which reign throughout the animal system, and our great obligations to that Being who has caused the instruments of relief, and the structure of our frames so happily to agree.

Of the Articles composing the Class Epispastics.

The Class denominated Epispastics may be divided into three Divisions.

1. Epispastics, strictly so called, or Vesicatories.
2. Rubefacients.
3. Setons and issues.

The most important article under the first head, is the *Cantharis*, or *Meloe Vesicatorius*, or *Spanish Fly*.

Natural History already noticed.

Chemical History likewise.

The chief use to which Cantharides is applied, is in the form of Blisters. No other known substance produces the effect so certainly, so extensively, and, upon the whole, so easily to the patient, and hence this insect is among the most valuable articles of the *Materia Medica*.

Preparation of the Cantharides, and the formation of Blistering Plaster.

The choice of the place upon which to apply a blister, will depend much upon the nature of the disease which is under treatment, and according as our object is to obtain a *general* or *local* operation.

When we wish to obtain the *general* effects, it is customary to apply them to the legs, upon the internal and inferior part of the calves—The advantages of this situation consist—

In the facility of dressing, the plaster can be easily retained in its situation by bandages, and they are parts upon which counter-irritation can be made with greater effect.

Some practitioners prefer applying them to the thighs.

The advantages—The surface more extended, and nearer to the seat of irritation. The texture less aponeurotic—less subject to tedious ulcerations. The latter we prefer when a strong impression is to be made upon the system.

The inside of the arms another situation favorable for the *general* operation of blisters.

Particular situations selected for particular diseases.

Affections of the chest are favorably acted on by impressions on the fleshy part of the arm.

Diseases of the eyes and head, restrained by impressions on the neck and upper part of the back.

Diseases of the abdomen and the uterine organs, by applications to the inside of the thighs.

When the operation is *local*, the nearer the blisters are applied to the seat of the disease, the more beneficial they will prove.

The *form* and shape of the blisters to be employed.

The size of these topical applications proportioned to the results we wish to obtain.

In general, a large blister does not create more uneasiness than a small one, as from its size it is kept closely applied to the skin, and does not change its situation.

The pain produced by the action of Cantharides varies greatly, according to the part to which they are applied, the thickness of the skin, and general irritability of the constitution. In some cases slight, in others, very acute.

In dressing blisters.

When to keep up a permanent discharge, the means to be employed are—a milder form of Cantharides ointment, or using a watery infusion of Cantharides, with stimulating resin ointment.

The Savin ointment employed for the same purpose.

Se pain of blisters is much connected with their unsteady application ; it will be proper, in applying them to children, to surround the blister with a margin of strong adhesive plaster. Thus it is kept steadily applied to the skin, and the pain and irritation from it greatly lessened.

The effects of blisters on the constitution.

The production of strangury, by the absorption of some active principle from the fly—for if the flies are steeped in boiling water, they are deprived of this power of thus acting upon the urinary organs, while their vesicating properties are not much impaired.

The Treatment of Strangury—Much benefit will be derived from the free use of mucilaginous drinks and mild diuretics—as barley-water, the parsley root tea, watermelon seed tea, etc., opiate enema.

Lytta Vittata—*Potato Fly*.—Native of the United States.

Has considerable resemblance to the imported fly.

From experiments made with these flies, they possess vesicating properties equal, if not superior, to the imported.

Vesicatories derived from the Mineral Kingdom.

Tartarised Antimony, already noticed.

Nitric Acid—

From the promptness of its operation, and its local irritation, it has been employed in diseases which are rapid in their progress, and dangerous from their irregular determinations—Employed in *Cholera Morbus*—applied to the whole of the Epigastric region properly diluted, a speedy action commences, and with it much relief is afforded.

Two parts of the acid are diluted with one part of water, and with this mixture, the surface over the affected part is to be rubbed. As soon as the patient experiences pain from it, the acid is to be neutralized by washing the surface with a solution of Carbonate of Potash. The cuticle can now be easily detached, and the cutis vera left raw, upon which a common blister may be laid, to keep up the irritation. Employed in other diseases in which prompt vesication is desired—to the low states of fever—to the comatose affections—to mania, and other instances where the ordinary process of blistering is resisted.

The vegetable vesicatories—as the mezereon, the ranunculus bulbosus, and others, seldom employed—their consideration becomes unnecessary.

RUBEFACIENTS.

EFFECTS produced by their application to the surface.

The friction by which they are applied, promotes the intention with which they are directed.

The substances are of an acrid and stimulating nature, as Spirits Turpentine, Mustard, Ammonia, Camphor, the Essential Oils, etc., and the diseases which they are used to relieve, are the slighter degrees of local inflammation—Inflammation of the tonsils, slight pains of the chest, rheumatic affections, are often effectually removed by friction of the surface in the neighborhood with a rubefacient.

Sinapis, or *Mustard* among the most important.

In the form of Cataplasm, it is quick and energetic in its operation, and on the occasions in which it is used, is a

resource, the place of which, probably, no internal remedy can supply.

The effects produced by its application.

Employed where the powers of the system are suddenly prostrated, or languish under a feeling of exhaustion and faintness. The pain and excitement following the application renew the vital energies, and from the convenience with which they are applied, they become a very essential, and even necessary article in our prescriptions.

The occasions for their use must be familiar to all.

Their preparation—by making a paste of the powdered Mustard with vinegar, and apply it to the skin, spread on cloth. The Rubefacient action quickly succeeds, which cannot be long supported, and it must be removed in the space of half an hour, or an hour, otherwise very painful and distressing sores would be produced.

A few words may be said upon the uses of *Mustard Seed*, (Semen Sinapi) in diseases.

It has been recommended in several diseases, as in Dropsy, Rheumatism, Impaired Appetite, Indigestion, Asthma, and several others. As a popular remedy, it has been, and is still in vogue in many parts, particularly in England. The white mustard seed is proposed, and it is directed to be taken in doses of a *tea-spoonful*, unbruised, in a little cold water, two or three times a day.

It does occasionally prove useful as an aperient, and for this purpose may be employed advantageously in the chronic diseases mentioned. As a popular remedy it has had a great run, but like other catholicons, it has probably nearly run its course.

Oil or Spirits of Turpentine—Avaluable rubefacient. Aided with the friction of flannel, the skin becomes as tender and painful, as when a blister has been applied—and in affections of the chest and abdomen, may often be substituted for its more permanent impression.

Seldom employed alone, but combined as follows :

R. Spirits Turpentine,
Spirits of Hartshorn,
Olive Oil— each equal parts, forms a
very useful embrocation.

There are a variety of other articles commonly employed as rubefacients—as Garlic, Horse Radish, Capsicum, Tincture of Cantharides, Aq. Ammonia, Spirits of Camphor, etc. Having already spoken of their general operation, and the diseases to which they are applicable, it is unnecessary to treat of these articles separately. They may be employed singly, or united to the formula already furnished.

Where a mild preparation is required, the following may be employed :

℞. Spirits of Camphor,
Olive Oil,
Hartshorn, each equal parts.

To these the Tincture of Opium may be added, where benefit will ensue from an anodyne operation.

A still stronger embrocation is made as follows :

℞. Olive Oil, $\frac{3}{4}$ iiss.
Sulphuric Acid, $\frac{3}{4}$ ss.

This preparation is well adapted to Chronic Rheumatism, and chronic pains in various parts of the body.

Red Pepper, infused in spirits, forms a very good embrocation.

Granville's Lotion—

℞. Spirits Camphor, $\frac{3}{4}$ ii.
Spirits Rosemary, $\frac{3}{4}$ iv.
Strong liquid ammonia, $\frac{3}{4}$ x.—m. for a liniment.

Capsicum Liniment—

℞. Powdered Capsicum, $\frac{3}{4}$ iii.
Powdered Mustard seed, $\frac{3}{4}$ iss.
Camphor, $\frac{3}{4}$ ss.
Powdered Cantharides, $\frac{3}{4}$ iii.
Alcohol, 1 pint—digest and add.
Spirits Turpentine, $\frac{3}{4}$ vi.

The above recommended by Prof Geddings as a rubefacient in Cholera and in collapse of the system, used freely.

Another—

℞. Alcohol, $\frac{3}{4}$ iijss.
Sulphuric Æther, $\frac{3}{4}$ ij.
Tincture Opium,
Tincture Cantharides,
Aqua Ammonia, each, $\frac{3}{4}$ ss.
Ol. Organum,
Ol. Rosemary, each, $\frac{3}{4}$ i.
Ol. Sassafras, $\frac{3}{4}$ ij.
Camphoræ, (Gum) $\frac{3}{4}$ v.—mix.

Apply as a Liniment in Local Rheumatism, Sprains, Bruises etc.

SETONS AND ISSUES.

THE Third Division comprehends *Setons and Issues*—the manner in which they are formed.

Setons are much employed in surgery. Unless kept very clean, and dressed with much tenderness, they excite much irritation, and prove very troublesome to the patient.

Issues not being subject to these objections, and being upon the whole better adapted to the curative intentions in disease, the remarks made will be confined to them.

Issues—refer to Prof. of Surgery for the manner in which they are established.

They have been in use from a very early period in medicine, from the time of Hippocrates to the present day.

Diseases in which they have been used.

In *Phthisis Pulmonalis*—Their utility confirmed by the very beneficial effects which have followed the spontaneous production of abscesses in the axilla in phthisical cases. They may be applied to the sternum between the breasts, and kept discharging two or three months.

In *Chronic Hepatitis*, and other morbid states of the Liver. The deranged conditions of the viscus are often relieved by the occurrence of a diseased state of the skin; as gutta rosacea, herpetic eruptions, and leprous dequimations. A caustic issue has the same effect, and it possesses the advantage of being easily applied at any time, and easily healed.

The efficacy of the discharge is confirmed by the practice so common in India, of establishing these artificial drains in the neighborhood of the diseased organ. It has been noticed as a very common occurrence, that the porters who generally go naked to the middle, exhibit in their sides either issues in operation, or the cicatrices which have been formed.

The use has extended to the treatment of *Dyspepsia* and *Hypochondriasis*.

In obstinate cases of *Leucorrhœa*, which had resisted all the usual remedies.

In *Menorrhagia*, applied on each side of the spine, above the ilium.

In Scrofulous affections with advantage.

In *scrofula* of the hip joint, or that disease called *Morbus Coxarius*, and in that affection of the spine known under the name of *Spina Bifida*.

DIVISION 12.

STIMULANTS.

HAVING completed what was necessary to be said on the articles which promote particular secretions, I shall proceed to speak of those, the action of which is general and diffused over the system. The medicines of which I am now to treat,

exhibit their effects upon the several systems of the body, as the arterial, the nervous, the muscular, etc., those of which I have spoken have their operation upon its parts.

By the term Stimulant, is meant an agent endowed with power to increase the mobility of the system, or in other words, to excite sensation, motion and thought. It is not to be supposed that the articles of this Division differ only in the degree in which they are capable of producing these effects, but in each is to be observed not only a difference of power, but also in their specific operation upon the system. Thus, to some belong the property of exciting the action of the heart and arteries, of producing warmth upon the surface, and with these a renewal of the vital energies. These are what I would denominate Stimulants or Incitants. Others, in addition to these general effects, manifest a particular action upon the sensorium commune, or general nervous system, as evinced by the property of producing sleep, allaying pain—these are called Narcotics. Others, besides a stimulant operation, have the effect of allaying irregular muscular contraction; and to these is applied the term Anti-spasmodic. To the head of Stimulants may be referred two other classes of medicines, the operation of which is more slow and gradual, but their effects are equally obvious. These are Tonics and Astringents. Under this term, then, we have arranged five classes of medicines, each of which I shall consider in their order.—*Murray's M. M.*

First, of those called Stimulants, or medicines increasing the action of the heart and arteries.

Stimulants produce their effects by an impression upon the nervous energies of the stomach, which, being communicated to the sensorium, is thence diffused over the system. The operation of these substances is too rapid to admit of the supposition of their introduction into the circulation. By the impression upon the stomach through the medium of the nerves, the vital energies are excited, as is evinced by the activity of the mental and corporeal powers, the increase of the force and vigor of the pulse, by the general determination of blood to the surface of the body, producing heat, flushing, and even perspiration. From a knowledge of their effects, we judge of the diseases to which they are applicable. Employed with caution, they become very valuable in those cases of debility succeeding fevers, or other violent diseases, when the morbid action ceases, and no organic disorder remains.

At the present time, it is so fashionable to attribute all diseases to inflammation, that it might almost be questioned whether such a class as Stimulants should be retained. We

confess that we are not so much a convert to the physiological system of medicine, as to admit of their exclusion from practice. We still, however, consider that they are less necessary, and that their administration should be more cautiously regulated than has been usual. This is more particularly the case when we reflect, that all the symptoms of prostration may be produced from irritation or inflammation of particular organs. Take for example typhus, and the low forms of fever generally. The symptoms most strongly characteristic of these diseases, arise in lesions of the cerebral, spinal and nervous systems. Inflammation of these systems is followed by great prostration of strength, frequent pulse, excited skin, depraved secretions, stupor, coma, convulsions; and it is for the relief of these very symptoms that stimulants are so frequently employed.

There are other cases, however, where typhus is strictly adynamic, and in which the free use of stimulants becomes necessary. These cases are, however, rare, compared with the acute forms of the disease. The symptoms are great prostration of the muscular and nervous energies, delirium, hæmorrhage, scattered petechiæ, soft, fluent pulse, heat of the skin little increased, or below par. Under these circumstances it is necessary to administer Stimulants, and often to a considerable extent.

It is obvious, therefore, that in the employment of these medicines much discrimination is required, and that until a correct diagnosis is drawn, mischief rather than benefit must arise from the use of Stimulants. The practitioner, therefore should make himself acquainted with the Pathology of disease, and that he may be guided in his researches, he must have recourse to the productions of the French school. He will be much assisted by Goupil's exposition of the modern doctrines, Broussais, on Chronic Inflammation; Louis, on Gastro Enteritis. But though Stimulants are improper while inflammation exists, yet they become proper at its decline, to put an end to the relaxation and inaction which occur in parts that have been long stimulated. Under these circumstances the powers of the constitution languish, the circulation is feeble, and the digestive function is weak. The functions here, are materially assisted by a supply of gentle stimulation, and it is then that they are useful and safe.

PARTICULAR STIMULANTS.

Carbonate of Ammonia—Sesqui Carbonate of Ammonia.

Preparation—

The effects of this article as a Therapeutical agent are—
Stimulant, excitant, or califacient.

Effects upon the system—

It produces a warmth in the mouth, throat and epigastrium, frequently attended with eructations.

A temporary excitement of the vascular system succeeds, this excitement being often of short duration.

The heat of the skin is sometimes increased, with a tendency to perspiration.

Sometimes other secretions are excited, as the Urinary.

The nervous system is also affected, and the activity of its functions is heightened, as evinced by the increased capability for muscular exertion, and the great facility with which all the functions are executed.

It is employed, therefore, with advantage as a stimulating sudorific in

Continued Fevers, which have existed for some time, and when the activity of their circulation is abated.

The usual dose is grs. v. every second hour—but it may be given to an extent of grs. x. every hour, and even every half hour.

As its effects are evanescent, perhaps more so than any other medicine, the doses ought to be small and frequently repeated.

In one respect, the vol. alkali differs from any other article of the class, which is, that though it is a powerful stimulant, it excites an action which approaches nearer to health than any of them. On this account it is used earlier than any other medicine in Inflammatory affections, and with greater safety in mixed cases than most of this class.

It may be given in pills, or what is preferable, in the form of Julep, as follows:

℞. Carbonate of Ammonia, $\frac{3}{4}$ i.
White Sugar, $\frac{3}{4}$ iii.
Mucilage, $\frac{3}{4}$ vi.
Spts. Lavend. Comp., $\frac{3}{4}$ ii. m.

Dose, $\frac{3}{4}$ ss. every hour or two hours.

In other forms of Fever it is given.

In *Intermittents* it has been recommended.

When given before the period of accession, it either prevents the paroxysm, or mitigates its violence. It may also be employed during the hot stage, in the state of Spiritus

Mindereri, with great benefit, in order to bring on perspiration.

In *Remittents* it is also useful, where there is any tendency to Typhus.

In some *Inflammatory* affections this article has been recommended.

In *Pneumonia*, after action has been subdued by depleting measures, when the expectoration is deficient, the skin dry, and the pulse small, it has been given in combination with a Decoction of Seneka, with the effect of promoting perspiration, and a more free expectoration.

In the form of *Pneumonia* called the *Typhoid*, this article in conjunction with other sudorifics, forms the most successful plan of treatment.

The practice pursued in this disease.

In many of the affections of the *Alimentary Canal*, the Carbonate of Ammonia is employed with advantage.

In *Flatulent Colics*, unconnected with Inflammation.

In *Cardialgia*, depending upon acidity—and in the same affection when it occurs in the early and late stages of pregnancy, this article combined with magnesia and other substances, has been found very efficacious. The following is the usual formula:

R. Aqua Ammonia,
Calcined Magnesia, each, $\frac{3}{4}$ i.
Cinnamon Water, $\frac{3}{4}$ ii.
Water, $\frac{3}{4}$ iv. m.

Dose, $\frac{3}{4}$ ss., whenever the uneasiness is experienced—and by taking a dose before each meal, the recurrence of the uneasiness is prevented.

In *Gastric affections* supervening on habits of irregularity and debauch.

In *Chronic Rheumatism*, in combination with the Tincture of Guaiac, forming the Volatile Tincture.

In *Hoarseness*, depending upon relaxed states of the throat, beneficial effects have been obtained from its use.

In diseases of the class *Neuroses*—Not useful in any but as a palliative in Hysteria, and a Stimulant in Syncope.

The *Ammonia* has been reported as possessing the power of quickly bringing an *intoxicated man* to his senses. The reports contradictory on this subject.

The circumstances which in our opinion render it efficient.

As an *application to Burns*—It has been recommended by M. Guérard, and employed in the form of caustic ammonia.

When the burn affects the extremities of the fingers, they are immersed in the liquid without any addition of water. When the seat of the burn does not admit of such immersion,

compresses dipped in the liquid are applied, preventing the evaporation by means of a water-proof covering. The pain is thus removed. As evaporation takes place, a renewal of the solution should be made.

The stronger the solution, the more efficacious.

When there is solution of continuity it should not be used.

Lastly, in the bites of *venemous reptiles* it has been recommended.

It is given internally in large doses, and the part is bathed with a solution of the same, and popular opinion is in favor of its utility. Applied externally, it may be beneficial by uniting with the poison, which is probably of an oily nature, and thus neutralising its activity.

A variety of other diseases are enumerated by writers in which this article is beneficial. We are, in our opinion, in possession of remedies better adapted to them, and shall omit their enumeration.

The preparations are the

Concrete Carbonate of Ammonia.

The water of Ammonia, pure.

The Acetate of Ammonia.

Camphor.—This article has been variously arranged by writers on the M. M.—by some placed among the Narcotics, and by others among the Anti-spasmodics. The present situation seems to be the least objectionable, as the property most strikingly exhibited is its Stimulant. Its Natural History I have already spoken of, and shall refer to what was said on that occasion—vide Diaphoretics.

Application of Camphor to diseases.

By some it has been considered Sedative.

This opinion is somewhat remarkable when its sensible qualities are considered, since no medicine exhibits more evident stimulating properties.

Its *taste is acrid*, and when swallowed a degree of heat is experienced in the fauces, with some pain and uneasiness, which is probably owing to its stimulating the upper orifice of the stomach.

In small doses, it produces much general excitement, and if pushed very far, it brings on convulsions, delirium and death.

Composition—Carbon, Hydrogen, Oxygen.

The operation of this article is somewhat peculiar. From its sensible properties it is undoubtedly stimulant, yet it does not exert as much action upon the sanguiferous system as is commonly supposed.

It has an action upon the brain and nervous system in such a degree, as to be considered one of the Sensorial Stimuli, and it is probably from its action on this part of the system, that

its good effects in diseases are owing. Its action upon the sensorium is different from that of the Narcotics in moderate doses, since it is not always followed by a disposition to sleep.

In its action as well as composition, it seems to be *sui generis*, and is better arranged under this head than any other.

Camphor is absorbed as we formerly mentioned, and is thrown out of the system by the bronchial membrane principally. It has also been recognized in the perspiration.

Medical uses—It was at one time much used in *Fevers*, but it has been neglected of late, and much more so than it deserves.

It has most frequently been employed in those *Fevers considered Typhoid*, particularly when attended with marks of great debility, or prostration of strength, and in these cases it is by some much preferred to the vol. alkali. Both are, no doubt, admirably adapted to meet the indications in such cases, and they may be employed alternately, in order to avoid their losing their power, by the system becoming habituated to either.

When employed for this purpose, the following formula will be the pleasantest mode of administering it:

R. Camphor,	℥ i.
Powdered Gum Arabic and	
White Sugar, each	℥ ii.
Or Sweet Almonds blanched,	one or two dosen.
Rectified Spirit,	gtt. x.

The Camphor is first to be rubbed with the Spirit to promote the pulverization, and very slightly the solution of Camphor.

Then add the sugar, powdered Gum Arabic, or Almonds, beat the whole into a pulp. Add

Water, or Mint Water, slowly,	℥ vi
Laudanum,	gtt. xx.—strain.

Dose, ℥ ss. to ℥ i.

The quantity of Camphor which remains in solution is very small, and the liquid can scarcely be said to possess more than the flavor and odor of Camphor.

This is a very pleasant and useful mixture, extremely well adapted to these cases, and I think preferable to the vol. alkali.

From its influence over the cerebral system, it has been frequently used in *Fever* to allay the nervous symptoms, as the delirium, watchings, subsultus tendinum, and often with success.

In *Gangrene*, it is recommended by the German physicians to promote a separation of the slough, and it is employed internally and externally, by sprinkling the powder on the part, or bathing it with the Tincture.

But it is less used for this purpose since the discovery of the efficacy of Blisters, in arresting the progress of mortification. It is often necessary to support the strength of the patient, and this is best done by a combination of Bark and Camphor.

In *Intermittents* the same combination will be found useful, given during the intermission, and before the expected paroxysm.

In the *Exanthemata* it has been long celebrated to promote the eruption, and to bring it back if it had receded—and in the confluent Small-pox it is used to promote the filling of the pustules, and to change the type of the Fever.

In *Inflammatory Fevers*, after action has been reduced, Camphor, in combination with Nitrate of Potash and Tart. Antimony, has been held in much repute to excite perspiration, and change the action of the disease. Of this combination I have already spoken under the head of diaphoretics.

In *Chronic disorders* it is used more freely, and with less danger. In some cases, a little opium is joined, which prevents the uneasiness which Camphor of itself is apt to produce, at the same time increasing its operation by the skin—a compound of Camphor and Opium being one of the most powerful Diaphoretics.

In *Chronic Rheumatism*, or other disorders where copious perspiration is required, there are few medicines more certain than a compound of Camphor and Nitrate of Potash, about grs. v. of the former, and x. or xv. grs of the latter, to which half a gr. of Opium may be added, and the dose repeated every two or three hours.

In *Dysmenorrhœa*, or painful menstruation, nothing has been found to afford more relief than large doses of Camphor in conjunction with Opium, and of the benefit afforded, we can speak from experience, having seen it operate in many cases almost instantaneously. The proportion used is

Camphor, grs. ii. to iv.

Opium, grs. 1.

Made into a pill and repeated every two or three hours, until relief is obtained—a valuable combination.

In the treatment of *Spasmodic and Convulsive diseases*, Camphor has been much celebrated, but it is now little resorted to.

In *Mania, Melancholia*, and other forms of mental disorder. In these cases Camphor is taken to occasion exhilaration. In persons of a nervous temperament it is much used for this purpose. In the Inflammatory forms it ought, of course, to be avoided, until action is reduced by venesection, and other means of depletion, when the employment of it with Opium,

will be found useful in allaying irritation and procuring sleep.

There is, however, says Dr. Chapman, a form of *mania*, in which we can resort to it at once, without premising any depletion.

It is in those cases in which mania is simply an affection of the mind, the system not sympathizing at all, as when it comes on from grief, or religious melancholy. Here camphor and opium, with blisters to the extremities, and the alternate use of the warm and cold baths, form the best mode of treatment. The patient is to be taken from the warm bath and plunged immediately into the cold, in order to give a sufficient shock.

It is, however, more especially in that species of mania which arises in intemperate and debauched habits, that camphor exhibits its best effects. When the system is too much reduced by long habits of indulgence in ardent spirits to support blood-letting, emetics, or the cold bath, this article will be found beneficial.

Given in doses of five or eight grains every hour, with laudanum, it will subdue the distressing hallucinations of the patient, renew the sensorial functions, and excite sleep.

The formula which I have commonly employed, is that already recommended, the quantity of laudanum being increased.

Camphor is often a useful addition to opium.

Persons who cannot procure rest, except by large doses of opium, will sometimes succeed by combining small doses with camphor.

Camphor dissolved in Spirits of Turpentine, in the proportion of $\text{z} \text{ii.}$ of the former to $\text{z} \text{i.}$ of the latter, is a good application for the toothache. Kreosote of a good quality is better.

In *Chilblains*, the Tincture of Camphor is generally considered a useful article, so much so, that many practitioners would consider it heretical to employ any other remedy.

As an *external* application, few articles are more extensively employed in this form. It is literally the family panacea, and the bottle containing the camphorated brandy is resorted to with much faith and confidence in its utility. It is certainly an excellent article in all local pains and bruises, and is much employed by physicians as an ingredient in liniments, etc.

Camphor is given internally in various forms.

It is given in the form of mixture, by rubbing the Camphor with sugar, almonds, or thick mucilage, and adding water by degrees. The operation is much promoted by previously adding a few drops of the spirit of wine, or other spirit, by

which the Camphor is dissolved—or it may be suspended in milk, and this last mode of exhibiting it seems to be generally preferred.

The camphorated mixture of which I have spoken, is as neat a preparation as any that is prepared, and will serve for most purposes when this article is required.

There is a preparation of Camphor, which from its excellence deserves to be noticed. It is a solution of Camphor in water, saturated with carbonic acid gas.

It is prepared in the following manner :

If pulverized Camphor is diffused in water in a Nooth's apparatus, or any similar contrivance, and carbonic acid gas is extricated by pouring sulphuric acid upon lime, the water will take up a considerable quantity of the gas, which also dissolves a portion of the Camphor. This is a very excellent preparation of Camphor, often of singular use in irritability of the stomach, and in incipient vomiting.

Family *Coniferæ*—*Oil or Spirits of Turpentine*.—This article, from the diversified indications it is capable of fulfilling, is entitled to a conspicuous station in the M. M.

Its Natural History and preparation have been already detailed.

The Oil or Spirits of Turpentine, taken into the system, is an active and diffusible stimulus, occasioning a sense of warmth in the stomach, and commonly throughout the body. It is absorbed, circulates with the blood, and in this manner affects the capillary vessels. It is thrown out of the system by the different excretories, on the vessels of which it acts in its passage through them.

The exhalations of the skin and the bronchial membranes, acquire a marked terebinthinate odor. while the urine obtains the smell of violets. On the Renal vessels it proves diuretic, and on the cutaneous vessels it proves sudorific. Its continued use brings on irritation of the urinary organs, even strangury, bloody urine, suppression of the secretion, with fever, thirst and vomiting.

It has of late been introduced very extensively into the practice of medicine, and from the success which has followed its use in many distressing and dangerous diseases, it is entitled to your attentive consideration.

Of the diseases in which it has been employed, the first in importance is *Puerperal Fever*.

This disease has raged at different times, with considerable malignity, in different parts of England and this country, so that few of those attacked escaped.

Though not always so destructive in its progress, yet the mortality was still very considerable.

The effect of the employment of this article has been, to arrest its destructive progress, in some instance, to restore the patient under the most unpromising circumstances.

The nature and character of Puerperal Fever described.

It is when these symptoms occur, denoting the extension of the disease to the Peritoneum, that the Spirits of Turpentine exhibits invaluable effects. Given in doses of from ʒ ii. to ʒ ss., with an equal quantity of castor oil, it produces very copious discharges from the bowels, and with them, a relief to all the distressing symptoms I have mentioned.

Peritoneal Inflammation is confessedly at all times very difficult of cure, and a variety of remedies have been employed for its relief with but little advantage. Some medicine is required, which while it supports the strength of the patient, will excite a copious secretion from the whole internal membrane of the intestines, and thus determine morbid irritation from the Peritoneum. Such a medicine we possess in the Oil of Turpentine, which, while acting upon the principle of a counter-irritant, determines fluids from the intestines, and by its purgative operation, these increased secretions are carried out of the system.

Recommended in those cases where typhoid symptoms are manifesting themselves.

At other times, when it occurs in Hospitals and crowded cities, it must be resorted to early.

To the internal use of the article, its external should also be conjoined, as the irritation of the skin will be found to relieve many of the urgent symptoms of the disease.

In the advanced stages of *Pneumonia*, particularly when of a Typhoid character, this article may be employed with the greatest advantage. When it is verging on a fatal termination, there are many properties possessed by it, which render it highly deserving of attention. Entering the circulation, and stimulating the secretory and excretory vessels, it exerts an influence much more exciting and enduring, than would readily be conceived.

It is given for these purposes in small doses frequently repeated, and has proved very efficacious after other remedies had failed to afford relief.

The dose should be xx. to xxx. drops, repeated every hour or two hours, and it is most conveniently administered with the white of egg.

In *Epilepsy*, this article has acquired no inconsiderable reputation.

It is given in doses of from ʒi. to ʒii., three or four times a day, and thus administered, cures have been accomplished in adults laboring for two years under this disease.

Circumstances limiting the use of this medicine.

When the disease depends upon organic lesions within the osseous envelopes of the nervous centres, no benefit can be expected to be derived from the use of this, or any other article. It is only when it originates in parts distant from the cerebro-spinal axis, that benefit can be derived from the use of these agents, which, while it stimulates the abdominal viscera, operates as a Cathartic and Anthelmintic, and produces a derivative action on the head.

As an *Anthelmintic*, its value is well known.

In *Chronic Rheumatism*, highly recommended, given in small doses.

In *obstinate obstructions of the Bowels*, combined with Castor Oil, in the proportion of ʒii. of Spirits Turpentine to ʒss. of Castor Oil, every two hours, until it operates.

In *Irritable* conditions of the stomach, as occurs in Yellow Fever, it has been recommended and employed, but it is a remedy of very doubtful efficacy.

In *Chronic Affections* of the Thorax, unattended with Fever, but when pain is referred to one spot, with a general uneasiness of the respiratory system, a slight, hacking cough, oppression, and a sense of weight about the precordia, and these symptoms occurring in a phlegmatic constitution, Turpentine given in small doses, or a Tincture of the gum, has been found beneficial.

In *profuse* discharges from the *mucous membranes*, it operates by a topical influence over the capillary and secreting vessels, in its passage through them. In some instances, its operation is confined to an increase of tonicity in the vessels which pour out the mucous—and in others, to a new kind of action, or irritation in the affected membranes, which supersedes the previously existing disease.

In *Gonorrhœa* and *Gleet*, it has been employed as a substitute for Copaiva.

Where relief is afforded by the use of this article, it is generally speedy, so that it is not necessary to continue its use longer than five or six days.

Where it is useful, from the tendency of these diseases to recur, it should be continued some time after the symptoms have disappeared.

In *Fluor Albus*, the Terebinthinate medicines have been employed, and sometimes with success, but they are generally ill adapted to the feeble constitutions in which this disease occurs.

In *Catarrhus Vesicæ*, or Crystirrhœa, it occasionally acts beneficially, but it is required to be used in small doses, and with caution.

In chronic *Pulmonary Catarrh*, and in chronic *Diarrhœa* and *Dysentery*, it has proved advantageous. In the last cases, it has a decided action upon the affected part, besides acting upon the mucous surfaces after its absorption.

In *Tympanitis*—To relieve flatulent distension of the stomach, and the colic thereby induced.

It should be given in full doses so as to act as a purgative, or it may be administered in the form of enema—also in *Acute Tympanitis* of the Puerperal state.

Besides these diseases, it is a valuable Styptic in *Hæmorrhages*. Employed externally, a dosil of lint dipped in Spirits of Turpentine, and applied to the bleeding vessel, is very efficacious. Internally, employed in hæmorrhages from the stomach, it has succeeded after other means have failed, united with the white of egg.

In *Nasal Hæmorrhages*, which nothing else has stopped, ten drops of Turpentine, taken every two or three hours, has entirely arrested the bleeding in less than twenty-four hours.

Hæmorrhages from other parts, particularly those called *Passive*, have been arrested by the same means. Its virtues, as a styptic, depending upon its exerting some direct influence on the contractile power of the blood-vessels.

It relieves the pain arising from the *sting of bees*, or other insects, rubbed over the part.

The forms of administration—

The best mode of taking it, is mixed with any aromatic water, or blended with mucilage or honey, or white of egg, or with magnesia.

Another mode, is to dissolve the Terebinthina Vulgaris, or Gum Turpentine, in whiskey, or brandy; of this from ʒ ii. to ʒ ss. may be taken, diluted with water.

As the dose varies according to the disease, we shall briefly recapitulate on this head.

In doses of ʒ i. or less, taken repeatedly in the day, it is used in removing chronic pains of the limbs, chest and elsewhere.

In doses of ʒ i. to ʒ ii. or ʒ iii., it is used in adults laboring under Epileptic Convulsions, Puerperal Fever, obstructions of the bowels, and the irritable state which attends Yellow Fever.

As a Vermifuge, in doses of ʒ ss. to ʒ i. ʒ ii. in cases of Tænia—and in smaller quantities in the other species of worms, combined with Castor Oil.

As an external remedy—

It is employed as a *Rubefacient* in numerous diseases, on the principle of counter-irritation.

As in the form of Liniment in Chronic Rheumatism, Sprains, Neuralgic affections, etc.

In the form of Fomentation, to produce redness of the skin in Puerperal Peritonitis.

As a powerful local stimulant, it is recommended by Dr. Kentish as an application to scalds and burns, particularly if attended with great constitutional depression.

It is an ingredient in many nostrums.

Whitehead's Essence of Mustard contains Turpentine, Camphor, and a portion of the Spirits of Rosemary.

St. John Long's Liniment consisted of Oil of Turpentine and Acetic Acid, held in suspension by yolk of eggs.

CREOSOTE.

So called from its power of preserving meat, from Kreas, flesh, and sozo, I save.

A substance of the nature of volatile oil, discovered by Reichenbach in the products of the distillation of wood.

It was discovered with five other principles, called paraffine, cupione, picamar, cappomer, and pittacal.

Preparation.

Properties—

Colorless oleaginous liquid, of the consistence of oil of almonds.

Taste, caustic and burning, followed by sweetness.

Odor, penetrating, disagreeable, like smoked meat.

To the touch greasy, volatilizable by heat.

Medical properties and uses—

Irritant or stimulant, narcotic, styptic, antiseptic, moderately escharotic, and by some, alterative and astringent.

Of all the various uses to which Creosote has been applied in medicine, there is none in which its efficacy has proved more valuable, than in checking vomiting, unconnected with any organic disease of the stomach. Its utility has been very favorably spoken of by several distinguished practitioners, viz.: Drs. Eliotson, Thompson, etc.

It has been employed in the vomiting which accompanies the colica pictonum, or painter's colic—in attacks of ordinary colic, in hysterical conditions of the system attended with vomiting, in vomiting from pregnancy. It should be observed, that it is chiefly useful where the condition of

the stomach depends upon nervous irritability of the system, and to be improper in those cases complicated with inflammation.

R. Creosote, gtt., vi.
Mucilage, $\frac{z}{3}$ ii.
Water, $\frac{z}{3}$ iv.

Dose, $\frac{z}{3}$ ss. to $\frac{z}{3}$ i. every two or three hours, according to circumstances.

Or,

In the form of pill as follows:

R. Creosote, 1 drop.

Aromatic confection, grs. iv., for pill 1.

The form of pill preferred in those cases where patients have a strong dislike to the creosotic odor, and administered as above.

Creosote has been useful in arresting vomiting after other articles have failed.

In diseased conditions of the mucous membrane of the *Alimentary Canal*, it has been employed with considerable advantage, and the forms in which it is more particularly useful is in *Cholera Infantum*, *Diarrhœa* and *Dysentery* of adults, accompanied, as they often are, with pains, griping, &c.

In *Hemorrhage* from the bowels, and from other organs of the body, it has also been employed, and with beneficial effects, proving itself often more valuable than the *Spirits of Turpentine*.

In *Diabetes*, Creosote is, perhaps, the most generally efficacious of any known remedy. Dr. Elliotson has reported four cases, differing in many general respects, in all of which it was of the greatest service.

In *Epilepsy* it has been tried, but without any satisfactory results.

Creosote has been pretty generally tried in affections of the *lungs*—but the experiments of several persons have determined, that it is not a remedy which should be given in Consumption, though in cases of increased secretion from the bronchial tubes, without inflammation, and in *Asthma*, depending upon a morbid excitability of the mucous membranes of the bronchia, it has been found of eminent service.

External application of Creosote—

Toothache—Preferable to other remedies—relieving the pain more certainly and speedily, and prevents its recurrence for a longer period—Chiefly useful when the nervous pulp is exposed—Introduced into the cavity of the tooth by means of a camel's hair pencil, or quill.

In various cutaneous diseases—as Scabies, Ring-Worms, Impetigo, Acne Rosacea.

To Chilblains.

In Burns.

In Ulcers of the scrofulous, phagædenic, and venereal kinds, it has been found most useful, and in others having a cancerous appearance.

To correct the fetor from ulcerated surfaces.

ALCOHOL AND ITS COMBINATIONS.

ALCOHOL is the product of the Saccharine principle, and is formed by the successive processes of vinous fermentation and distillation.

It is presented to us variously combined, according to the substances from which it is obtained, and of different degrees of strength.

It is the same substance in rum, brandy, gin, whiskey, in wines, and in the number of intoxicating drinks, which the ingenuity of man has discovered in every section of the country throughout the globe.

Its flavor, however, is modified according to the substance from which it is obtained, and its strength is influenced by a variety of circumstances which will be detailed to you from another chair.

From all these different liquors, the spirit can be obtained perfectly pure, and concentrated by repeated distillations.

When thus obtained, it is colorless and transparent, its odor is fragrant, and its taste highly pungent; in its specific gravity it is lighter than water, and this will be in proportion to the degree of concentration.

Its effects upon the system, are those of a powerful, and highly diffusible stimulus, increasing the activity of the circulation, exciting muscular energy, and great exhilaration of spirits. Given to a large extent, these effects are followed by intoxication, temporary delirium and stupor, exhibiting a strong analogy to the Narcotics, a class of medicines soon to be described.

In this state of concentration of Alcohol, it is seldom used internally, for though it might be employed, to rouse the powers of the system, it could seldom be used advantageously to repress irregular action, to graduate the excitement, to diminish irritation, or to induce sleep.

It is, therefore, principally employed as an external application to burns—to certain states of local inflammation not connected with increased action, to restrain hemorrhages, and for the relief of muscular pains.

In the *state of dilution in which it exists in spirits*, and in *wines* particularly, it becomes more extensively useful in diseases, being more agreeably exciting, more cordial and pleasant to the stomach, than any other stimulating article employed in medicine.

In the *state of Wine*, the stimulant operation of Alcohol is less sudden and more permanent. It excites action without exhausting the excitability in any great degree, and from its gradual operation, may be considered in comparison with ardent spirits, as exciting a Tonic effect.

To these may be added the nutritious substances which exist in Wine, by which the system is invigorated and supported.

The diseases, therefore, in which Wine is applicable, may be readily supposed to be of the typhoid character, when the indication is to support the strength of the patient, and to obviate symptoms of debility.

It is in these cases that it acts not only as a stimulant, but by inducing a more healthy action in the blood-vessels of the brain, it removes the unpleasant symptoms which so often attends in these cases, as delirium, subsultus tendinum, restlessness, &c.

By the agreeable sensation it gives to the stomach, it is not only refreshing, but it communicates tone to the bowels, and excites a desire for nourishment. Gently assisting, therefore, and cherishing the languid powers, it promotes all the natural evacuations, without increasing the disease, and by quickening the languid circulation, prevents those congestions from taking place in various parts of the system, which aggravate the original affection. For the production of these effects it must be given frequently and with great freedom, and, therefore, we may say with safety, that in all severe cases, Wine is the article chiefly to be depended upon.

By this practice being perseveringly employed, we may with confidence declare that many have been preserved from malignant diseases by the proper use of Wine alone.

But in advocating the use of Wine in the low stages of Fever, I would caution against the abuse of it. There are circumstances in the constitution of the patient, or the disease, which plainly forbid its use. In advising it, therefore, its effects are to be duly considered.

If it does not give uneasiness to the stomach, nor increase the Fever, restlessness, and raving—if the sick are refreshed, composed, and inclined to sleep by it, have greater freedom from their sickness, or are better supported under it, the conclusion is, that it must be a safe and suitable remedy, and without fear we may direct its use in such quantity, time and

manner, as the disease seems to require, and the sick can bear. If it produces effects the contrary to these, we may safely conclude that it is injurious, and that it ought to be abstained from, or given in moderate quantities.

Thus carefully exhibited, Wine will be found, says Dr. Chapman, not the least important of the stimuli, at a proper period in these diseases, being readily taken, even when other medicines are rejected, and with unrivalled effect it sustains, in many instances, the exhausted powers of life.

The state of the skin should also be consulted in the administration of Wine. If it is hot and dry, it ought not to be given, but when the heat is 98°, you may almost, invariably, administer it with safety, and, if the disorder really demands it, with advantage.

Few remedies have been abused more than Wine in Fevers. It is still given by many practitioners of the present day, in every stage and complication, with too free a hand, without a proper consideration of the organic derangements which forbid its use. There are circumstances, however, in *Febrile* diseases, which renders it indispensable to save the life of the patient.

It is demanded in cases commencing with such excitement, as to render the use of depletives essential, when in their course, some unexpected symptoms of sinking of the vital powers, or a sudden collapse comes on, which render the use of Wine, Brandy, and Ammonia, necessary. Such cases are not unfrequent, not only in Typhus Fevers, properly so called, but even in some of the more acute affections, as Biliary Fevers, and Intermittents of a malignant character.

During the summer of 1831, several patients were admitted into the Hospital, who trading to Savannah, were detained in the river several days, and others of the crew of the Revenue Cutter, were attacked with Fever of the climate, and of a very violent character. After the third or fourth paroxysm, great prostration ensued, with congestion, and such feebleness of the vital powers, that reaction seemed as if it could never be excited.

Several of the patients were only restored, by the free use of Stimulants.

Again, the practice becomes useful in persons above the middle age, who have lived intemperately, and in whom these sudden changes are likely to occur.

The practitioner should be much on his guard in acute cases of Fever, and he will have reason to congratulate himself, who can provide for these emergencies, but he will be doubly happy, who, by much care, can foresee and prevent them.

Stimulants become necessary in the advanced stages of Typhus Fever, when the symptoms indicate a failure of the nervous and circulating systems, and especially when evacuations have in the beginning been judiciously employed. Here the administration of Wine often acts like a charm, by rousing the languid powers and abating the restlessness.

The quantity of Wine which should be administered in Typhus, must of course depend upon the symptoms, and the degree of action existing in the system.

Sir John Pringle was in the habit of ordering in the Jail or Hospital Fever, from a quarter to a half pint a day of the strong kinds of Wine, (which quantity would now be considered insufficient in many cases,) and of the Rhenish, or small French Wine, as much as a quart a day.

In the Low or Nervous Fevers, Dr. Gilchrist allowed a bottle a day, and Dr. Heysham gave as much as two bottles and a half in the space of twenty-four hours, in the Putrid Fever which appeared at Carlisle, in 1781, and thinks that even more might sometimes be given with advantage.

In the last stage of the Jail Fever, Dr. Carmichael Smith has given with advantage two bottles of Madeira a day, for several days together.

Upon the subject of quantity, no precise directions can be given. In some of the above instances it may have been given in too large quantities, and in others not sufficient.

The strength may certainly be roused by powerful stimuli, used to a great degree, but it may be questioned whether the patient has been benefitted, since we have seen this new excitement immediately followed by an inflammatory condition of the brain, or the excitability so much worn out, that no subsequent attempts could renew the powers of life.

Perhaps a pint a day may be generally sufficient, but upon this subject, no precise quantity can be specified.

The *choice of Wine* is no matter of indifference. To obtain the medicinal effects of Wine, a preference is commonly given to *Port*, as being less disposed to acidity, and possessing a less degree of Spirit than Madeira. When this cannot be obtained, good old Madeira will be found to possess every quality which is necessary to excite action, and to supply the pabulum upon which this action is to be maintained.

Next to these is Sherry. As a general rule, it will be found advisable to allow the sick their favorite wine.

When Wine cannot be procured, Cider, Porter or Spirits, diluted with water, sweetened and acidulated, are tolerable substitutes. Dr. Cullen was of opinion, that the last mentioned compound and Opium produced all the effects of Wine, but Opium does not support the pulse like Wine.

Besides Fevers, Wine is employed with much advantage in Tetanus. Dr Rush, and several other American physicians, speak favorably of the practice.

Dr. Currie saw a patient cured of this disease in the Liverpool Infirmary, by drinking nearly a quarter cask of Wine.

To the valetudinary and infirm, it affords a wholesome and agreeable stimulus, and to the convalescent from acute diseases, the means of renovating their exhausted vigor.

Of the use of *Ardent Spirits*, I need not say much. They are seldom resorted to, except in extreme cases, and it is such cases as will justify their use. Their stimulant operation is not sufficiently permanent, or capable of being regulated, and it is questionable whether the patients may not suffer more from the depression which follows the excitement they produce, than he can be benefited by the temporary elevation consequent on their use.

Poisonous Operation of Ardent Spirits.

When taken in large and poisonous doses, they produce all the effects of the narcotic poisons:—insensibility, apoplectic stertor, labored and imperfect respiration, weak, frequent pulse, with paralysis and insensibility of the Iris.

Treatment—The administration of an Emetic.

If the stomach cannot be excited to action, then titillation of the throat should be practiced—Warm water introduced into the stomach—The cold affusion—The use of the stomach pump—Ammonia as a stimulant, and to counteract the narcotism induced.

The degree of danger arising from Ardent Spirits, will be estimated, by the in-irritability of the Iris, and the want of energy in the stomach to expel its contents. If this last can be excited, the patient will recover—but if it cannot, death is usually the consequence, since it is to be presumed that the stimulus has been so powerful as to bring on a fatal state of collapse, by which the powers of vitality are exhausted—and instances are not rare of persons having fallen dead instantaneously, upon swallowing a large quantity of spirits.

Morbid appearances—engorgement of the vessels of the brain, and a quantity of serum in the lateral ventricles.

Family *Solanaceæ*—*Capsicum Annum*—Red Pepper.

Native of South America, but cultivated extensively in this country.

Fruit, an oblong pod.

Odor, aromatic.

Taste, hot and pungent.

Capsicum is a very active stimulus, differing in a very essential manner from the preceding, in not exciting a narcotic operation on the brain, and in being less injurious in its operation than any other stimulus of the same activity.

Effects in small doses.

Effects in large doses.

It is employed chiefly as a condiment. It is added to various articles of food, either to improve their flavor, or, if difficult of digestion, to promote their assimilation, and to prevent flatulence. Much employed by the inhabitants of warm climates.

Its constitutional, not being in proportion to its local effects, it is not much employed by physicians, as a general or diffusible stimulus, though much in repute with irregular practitioners and the common people, for a great variety of purposes.

From the peculiarity of its operation, i. e., from the constitutional not being in proportion to the local effects, it is employed in cases and circumstances which would seemingly forbid its use, and to this only can we impute the impunity with which it is administered, in the excited states of the system.

Chemical History—

From this article, a peculiar substance has been obtained, to which the term Capsicin has been applied. When pure, it is tasteless, inodorous, and crystallizes in acicular fragments.

Ætherial Oil of Capsicum—

This oil possesses a most intolerable warmth and acrimony of taste, and concentrates all the stimulant properties of the pod. It is of a brilliant reddish color, has a peculiar odor, and aromatic taste.

Preparation.

Diseases in which Capsicum is employed.

In Febrile diseases.

It is employed to support the strength of the patient.

It is continued in these cases until a general warmth takes place, which must be kept up as long as debility, or symptoms of congestion exist. It is a valuable auxiliary in these cases, and is much resorted to.

In some of the stages of *Dyspepsia*, employed as a Carminative.

In *Cynanche Maligna*—Taken internally and used as a gargle. The manner in which it is prepared is the following :

Two table-spoonfuls of Cayenne Pepper, and two tea-spoonfuls of Salt are to be beat up into a Paste, on which half

a pint of boiling water is to be poured, and strained off when cold—an equal quantity of vinegar being added to the infusion, a table-spoonful every half hour, diluted with water, is a proper dose for an adult. Used also as a gargle.

Used in the form of a weak infusion, as a gargle in relaxed states of the throat.

In various diseases attended with diminished susceptibility of the stomach, Capsicum is an exceedingly useful adjunct to other powerful remedies—the operation of which it promotes by raising the diminished sensibility of this viscus, as in Cholera, Intermittents, the low forms of Fever, etc.

As a *Counter-Irritant*—It is a valuable addition to poultices and cataplasms, for renewing warmth, or exciting counter-irritation.

The Tincture may be employed for the same purpose.

Some individuals troubled with cold feet, have derived benefit from wearing socks dusted with Cayenne Pepper.

Family *Piperineæ*—*Piper Nigrum*—Black Pepper.

Natural History—

Properties—Stimulant and Carminative.

It is used as a condiment.

It is medicinally employed in checking nausea and vomiting, in removing hiccough, in attacks of retrocedent Gout, as a gargle in relaxation of the Uvula.

Extended to the treatment of Intermittent Fever.

May be taken in the state of powder, or the seeds swallowed whole, to the extent of v. to viii., twice a day.

The seeds are dipped in a solution of Gum Arabic, and afterwards in powdered Columbo to disguise them.

Seldom necessary to administer more than lxx. or lxxx. of these pills before a cure was effected.

Piperine, the alkaloid obtained from Black Pepper, is preferred. The dose is from one to four grains.

Valuable adjunct to Quinine.

When Piperine is used, it should be only such as is colored, and the deeper the color, the stronger it is.

When perfectly pure, or white, it is tasteless and inert.

It is often combined with Quinine. Half a grain of Piperine, and half a grain of Quinine, is equal to two grains of Quinine.

From Pepper an oil has been obtained, which is called the *Oil of Black Pepper*.

It is employed in Fevers of a Typhoid type, and is also a valuable adjunct to Quinine in Intermittents.

One drop is equal to three grs. of Quinine.

It is recommended as a cheaper and more valuable addition to Quinine than Piperine.

The Oil is separated from the Pepper by means of Æther and Alcohol.

Piper Cubeba, or Cubebs.

Natural History—

It resembles the common Black Pepper in size.

Taste, less pungent than Black Pepper.

It is principally known as a remedy in Gonorrhœa.

Mr. Broughton's experience with this article.

In fifty cases in which he employed it, there were five failures, five cases relieved, forty-one cured—the period varying from thirty-six to forty-eight hours, to a period less than a month—the average three weeks.

That it has advantages over the Balsam of Copaiva, in being admissible in the earliest and worst stages of the severest Gonorrhœa, without being productive of any inconvenience to the patient, or being attended with any injury to the functions of the stomach.

The time in which the cures were performed, also entitles it to a superiority.

Dose, \bar{z} ss. to \bar{z} ii. of the Powder.

\bar{z} ii. to \bar{z} ss of the Tincture.

If no beneficial effects follow, after the administration for two or three days, it should be omitted, and some other remedy employed.

We have employed this article without much advantage, and are better pleased with a combination of the Tincture or Powder with the Balsam of Copæiva, after inflammatory action has been subdued.

Sir Astley Cooper's formula :

Of the *modus operandi* of Cubebs in curing Gonorrhœa—

The powder is digested in the stomach, the volatile oil enters the circulation, stimulates the secretories of the kidneys, increases the secretions, and renders it less acrid and irritating to the bladder and urethra—at the same time, the urine being impregnated with the oil, the urethra is subjected to the specific impression of the medicine.

Cubebs contain an oil, upon which the efficacy of the article depends, in the proportion of \bar{z} i. and a $\frac{1}{4}$ to a pound.

From the existence of this volatile oil, the effects of the powder are often unequal.

Precautions in using the Powder—that it should be preserved in closely-stopped bottles, and to be ground, or powdered, a few hours only before it is administered, so as to retain as much of the oil as possible.

The oil may be administered in diseases.

In drops, in the dose of x. to xx., three times a day, or in the form of mixture, as the Balsam has been directed.

The discovery of the oil an important one, as we have in many instances a remedy for Gonorrhœa, in as small a compass as we have for ague in Arsenic or Quinine.

Cubebs has been objected to from its tendency to produce swelling of the Testicle.

After very frequent trials of this article, in the form of powder and essential oil, we have only known of one case in which this effect was satisfactorily ascertained to have been produced.

In *Leucorrhœa* it has also been employed.

In *Chronic* affections of the bladder.

To the several modes mentioned of administering this article, we may state, that it has been given in the form of *Enema*.

Balsam of Copaiva has been employed in like manner, and reported to have cured some cases speedily and effectually.

The manner of preparing the enema is the following :

R. Balsam Copaiva, ʒ ii.

Mucilage, ʒ iv.—mix for enema.

The second day the quantity is doubled—the third day ʒvi. of the Balsam—the fourth day, ʒ viii.—Laudanum is added to tranquillize the rectum, and allow of its retention.

Adulterations—

Adulterated with the other and cheaper kinds of Pepper.

It is mixed with powdered Pimento.

Cubebs ought to be kept in the pulverized state in a well stopped phial, as its essential oil is volatile—and when kept in paper, the latter absorbs a large proportion of it.

DIVISION 13.

NARCOTICS.

DEFINITION of this Class—

Such substances as diminish the sensibility and irritability of the system, without occasioning any sensible evacuation.

This definition is objectionable, inasmuch as with the expression of some of the properties of these medicines, their stimulant operation is not included. Narcotics, though they have been considered by Dr. Cullen and other writers Sedatives, are Stimulants, endowed with considerable activity, and great diversity of remedial operation.

Their general effects are, to increase the force and frequency of the pulse, to excite the operations both of the body and mind, giving to them increase of vigor, inducing hilarity and intoxication.

These symptoms are soon followed by those of diminished action, the pulse becomes slower, but is full and soft, the body is less sensible to impressions, respiration is more easy, pain and inordinate motion, if present, are alleviated and depressed—the mind becomes inactive, and finally sinks into sleep.

To these succeed debility, with lassitude, tremors, and oppression.

Such are the effects of a small dose. If the dose is *larger*, the symptoms of diminished sense and action are induced without much previous excitement—and if the quantity be still *larger*, delirium, paralysis, coma, and convulsions supervene, and death finally succeeds.

These are the general effects of Narcotics. They are diversified according to the article employed, and not only do they differ widely from each other in their effects upon the system, but the operation of each is very different at different times, according to age, habit of body, dose and use, and various other circumstances.

They all agree in one respect, which is their effect upon the functions of the Brain.

Though all of this class agree in operating upon the Brain, their effects are by no means uniform. Some affect in a peculiar manner the mental powers, and proportionably little the other functions of the body, (as a particular kind of mushroom and nitrous oxyde gas.) Opium has the greatest tendency to induce sleep; green tea, on the contrary, to excite watchfulness. Alcohol and its combinations, which are by some considered Narcotics, excite also the actions of the heart and arteries, while others excite little or no action.

Opium constipates the bowels, while the Hyosciamus in allaying pain has no such operation.

From the action of these substances on the Brain, does speedy dissolution follow the introduction of a large dose taken into the stomach? Some experiments of Mr. Brodie, illustrate the manner in which death takes place, under these circumstances.

He found that by introducing Narcotic substances in a very concentrated state into a wound, or into the rectum of animals until insensibility was produced, and all the external signs of apparent death—yet, by opening the thorax, and exposing the heart to view, it was found contracting with con-

siderable force. He found, also, that by inflating the lungs, and keeping up artificial respiration, the actions of the heart could be continued for a considerable time.

He, therefore, concluded, that death, under these circumstances, was owing to the respiration being affected, and at length ceasing.

The lungs are, therefore, more dependent upon nervous influence for the performance of their functions than the circulation, and it is through them that the death of the heart takes place, and finally death of the body.

One of the means of recovering a patient from the poisonous operation of Narcotics, is the employment of artificial respiration, and this circumstance confirms the views taken by Mr. Brodie upon the operation of these substances, and the manner in which they prove destructive to the body.

For some experiments confirming these views, refer to Dr. Le Gallois's work, etc.

The impression of Narcotics upon the stomach, is extended by nervous communication with every part of the body.

Are the Narcotics Stimulating, or Sedative in their operation ?

Dr. Cullen was of the opinion that they were Sedative in their operation,

Dr. Brown maintained that they were Stimulants, surpassing all others in the diffusibility of their action, and that the debility which ensued was the result of this increased action.

This opinion is supported by the known operation of these substances. They are all referable to excitement, which in proportion as it is strong and diffusible, is at the same time transient in its duration, and soon followed by symptoms of diminished action.

If the dose is large, the stimulant effect is so rapid as to be hardly perceptible, and hence the Sedative, or depressing effects only appear. A dose still larger puts an end to life, without any symptoms of previous excitement.

How is this explained ? In the same manner as when speaking of the poisonous operation of ardent spirits. A collapse of the system takes place from an engorgement of the vessels of the brain, with an effusion of Serum in the Lateral Ventricles.

The conclusion, therefore, of this subject would be, that Narcotics are directly Stimulant and indirectly Sedative.

Reasons for considering the Narcotics Sedative.

One of the arguments advanced, is derived from their soporific effects, or tendency to induce sleep.

But how is sleep induced ? Can it not be brought on by any other than a direct Sedative operation ? or rather is it

not in common, the effect of positive and direct Stimulating operations?

Dr. Rush, in considering the causes of sleep, says: Natural sleep is brought on by a diminution of the excitement and excitability, by the continued application of Stimuli, which act upon the body in its waking state.

He then goes on to state, that sleep may be brought on at an earlier hour by an increase of the force of such Stimuli, as a long ride or walk, unusual exercise of the understanding, the action of strong passions or emotions, etc.

Artificial sleep, he then adds, may be induced at any time, by certain stimulating substances, as opium, etc.

Opium, in the production of sleep, operates in the same manner as the natural stimuli above mentioned—they all wear out the excitability, and bring on that state of indirect debility which is followed by sleep. If these medicines were directly sedative, they would bring on sleep at all times, and under all circumstances, and the sooner and more perfect, the stronger they are, or the greater the quantity.

Instead of this, if you give a man ready to drop asleep from fatigue and watching, a dose of any soporific medicine, it will put off sleep for some time. Here then the Stimuli of the Narcotic medicine seems to have the effect of putting off sleep as long as the sensibility and excitability of the body is sufficient to support their effects.

A second reason for supposing Narcotics Sedatives, is derived from their power of relieving pain.

The operation of Narcotics in relieving pain does not depend upon their rendering the brain torpid and insensible, but producing an excitement in the brain different from the painful impression, and thus relief is obtained. That it is not by any Sedative operation we know, from the Narcotics exciting pain and inflammation when applied to any tender part, as the globe of the eye or the surface of a wound. We know, too, that these medicines are contra-indicated in diseases where pain is a consequence of high action, and are only employed after the activity of the circulation has been reduced. If they exerted any sedative operation, why are they not attended in such cases with the same feelings of relief which follows blood-letting when properly and judiciously prescribed? The most satisfactory explanation is established upon the stimulating effect of these medicines.

A third proof of the Stimulating operation of Narcotics, is derived from their exhilarating, and producing intoxication.

I have already spoken of the use of Opium in Eastern countries, where wine and liquors are forbid, for the production

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of these effects—and that it is often had recourse to, to induce mirth, to dispel melancholy, and to relieve the mind of its troubles and disappointments.

With the views we have given you, of the effects and operations of Narcotics, they evidently become in practice remedies of great importance. The proper administration of them, calls for much both of experience and discrimination on the part of the practitioner.

They may be so employed, as to produce a stimulant impression, or a state of depression may be occasioned, without any previous excitement being apparent. To obtain the stimulant effects, they must be given in small doses frequently repeated, and thus the excitement they produce is kept up and sustained.

When the design is to mitigate pain, to procure sleep, to relieve irritation, to deaden sensibility, they should be given in full doses, and at distant intervals.

Rules in the administration of Narcotics, furnished from Chapman's Therapeutics :

1. We should begin with small doses, in order to test their action upon the system. These may soon be increased, as there is no class of medicines to which the system becomes sooner habituated, or which loose their effect more quickly by repetition than the present.

2. It is wrong to combine many of these articles in one prescription, or to use any number of them at one time. The importance of this rule will be obvious from the preceding observations. The system becoming habituated to one stimulus, we renew the first impressions by changing it for another, and in this manner keep in our employment a corps of reserve.

3. It is proper to change the part of the body to which we apply stimulants, as sensibility will be left in one place to a remedy, when completely exhausted in another. The stomach becoming enfeebled, we can have recourse to the skin, and from this last to the rectum—it being observed that impressions may be excited in the system by applications to this part of the Alimentary canal, when their operation has in a great measure ceased elsewhere.

4. The fourth rule in the employment of stimuli, is to endeavor to graduate the strength of the stimulus, to the state of excitability. This is a rule of much importance in practice, and from attention to which very happy results will often be obtained. In all cases of disease the strength of the stimulant should be proportioned to the state of the system, as without it the system will be depressed, and the system which should be

PARTICULAR NARCOTICS.

FAMILY *Papaveraceæ*--*Papaver Somniferum*, or *Poppy*, *Opium*.
Opium is the most valuable of the Narcotics.

It is obtained from the above plant, which grows in the four quarters of the globe.

It is chiefly cultivated in Asia, also in Africa, particularly about Thebes in Upper Egypt, hence called Thebaic Opium.

Description of the plant—

The method pursued in obtaining the opium from the pods of the plant, is the following :

At the time the pods are nearly ripe, incisions are made into them in the evening, and from them there oozes out a considerable quantity of a milky fluid. This fluid is scraped off early the next morning from the wounds, with an iron scoop, and worked in an earthen pot for a long time in the sun, until it becomes of a considerable consistence. This is then made into lumps of a globular form, which are covered with the leaves of the poppy, so as to prevent their running or sticking together.

The operation is repeated three times, but the produce gradually decreases in quantity, nor is it of so good a quality.

Opium is prepared in many places, but there is commonly known in commerce the following :—The Turkey, East India, Egyptian, and European Opium.

Qualities of the best Opium—

Tenacious, possessing considerable tenacity.

Fracture, shining when broken.

Color, dark brown.

Taste, nauseous, bitter, acrid.

Smell, disagreeable, heavy.

Adulterations—Frequently found in our markets mixed with leaves, stalks, seeds, &c.—and they are worked in when the opium is in a soft and recent state, for the purpose of increasing its weight and consistence. The quantity of these inert substances is frequently so great, that an ounce yields only four and a half, to five and six drachms, of soluble and extractive matter.

It is adulterated with various other substances—with extract of liquorice, when the specimen is brittle and tastes sweet—sometimes with Gum Arabic, or Tragacanth. It is mixed with sand and gravel, which is very common in order to increase its weight, and the Opium feels gritty between the teeth.

inferior to the Turkey, and yields
article has been much
have been very



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